TOSHIBA

File No. 810-200795GR

SERVICE MANUAL

DVD VIDEO PLAYER

SD-170EKB2
SD-170EKE2

The above models are classified as green products (*1), as indicated by the underlined serial numbers. This Service Manual describes replacement parts for the green products. When repairing these green product(s), use the part(s) described in this manual and lead-free solder (*2).

For (*1) and (*2), see the next page.

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Oct. 2007 GREEN

(*1) GREEN PRODUCT PROCUREMENT

The EC is actively promoting the WEEE & RoHS Directives that define standards for recycling and reuse of Waste Electrical and Electronic Equipment and for the Restriction of the use of certain Hazardous Substances. From July 1, 2006, the RoHS Directive will prohibit any marketing of new products containing the restricted substances.
Increasing attention is given to issues related to the global environmental. Toshiba Corporation recognizes environmental protection as a key management tasks, and is doing its utmost to enhance and improve the quality and scope of its environmental activities. In line with this, Toshiba proactively promotes Green Procurement, and seeks to purchase and use products, parts and materials that have low environmental impacts.

Green procurement of parts is not only confined to manufacture. The same green parts used in manufacture must also be used as replacement parts.

(*2) LEAD-FREE SOLDER

This product is manufactured using lead-free solder as a part of a movement within the consumer products industry at large to be environmentally responsible. Lead-free solder must be used in the servicing and repair of this product.

WARNING

This product is manufactured using lead free solder.

DO NOT USE LEAD BASED SOLDER TO REPAIR THIS PRODUCT !

The melting temperature of lead-free solder is higher than that of leaded solder by 86℉ to 104℉ (30℃ to 40℃). Use of a soldering iron designed for lead-based solders to repair product made with lead-free solder may result in damage to the component and or PCB being soldered. Great care should be made to ensure high-quality soldering when servicing this product-especially when soldering large components, through-hole pins, and on PCBs- as the level of heat required to melt lead-free solder is high.

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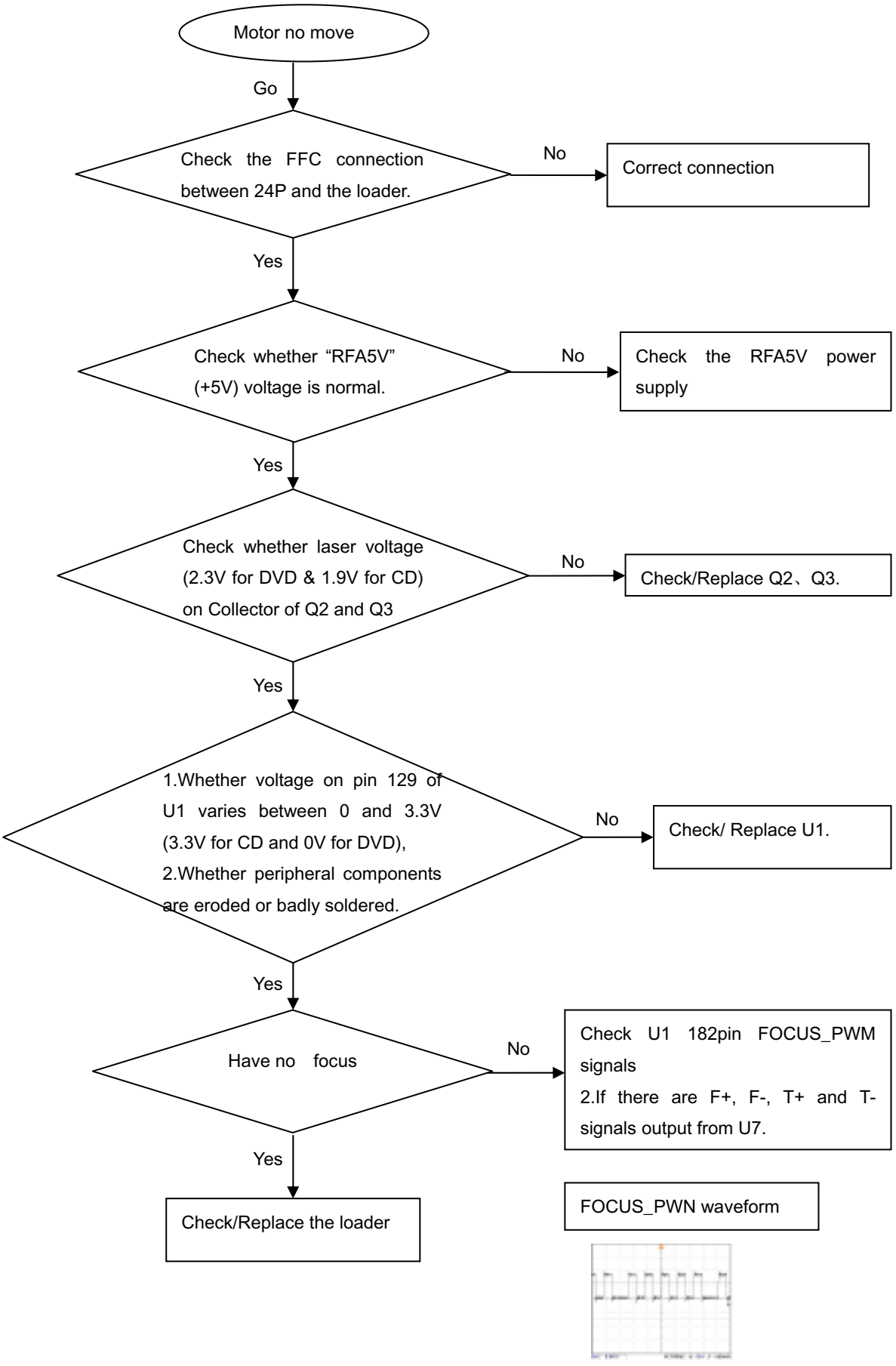
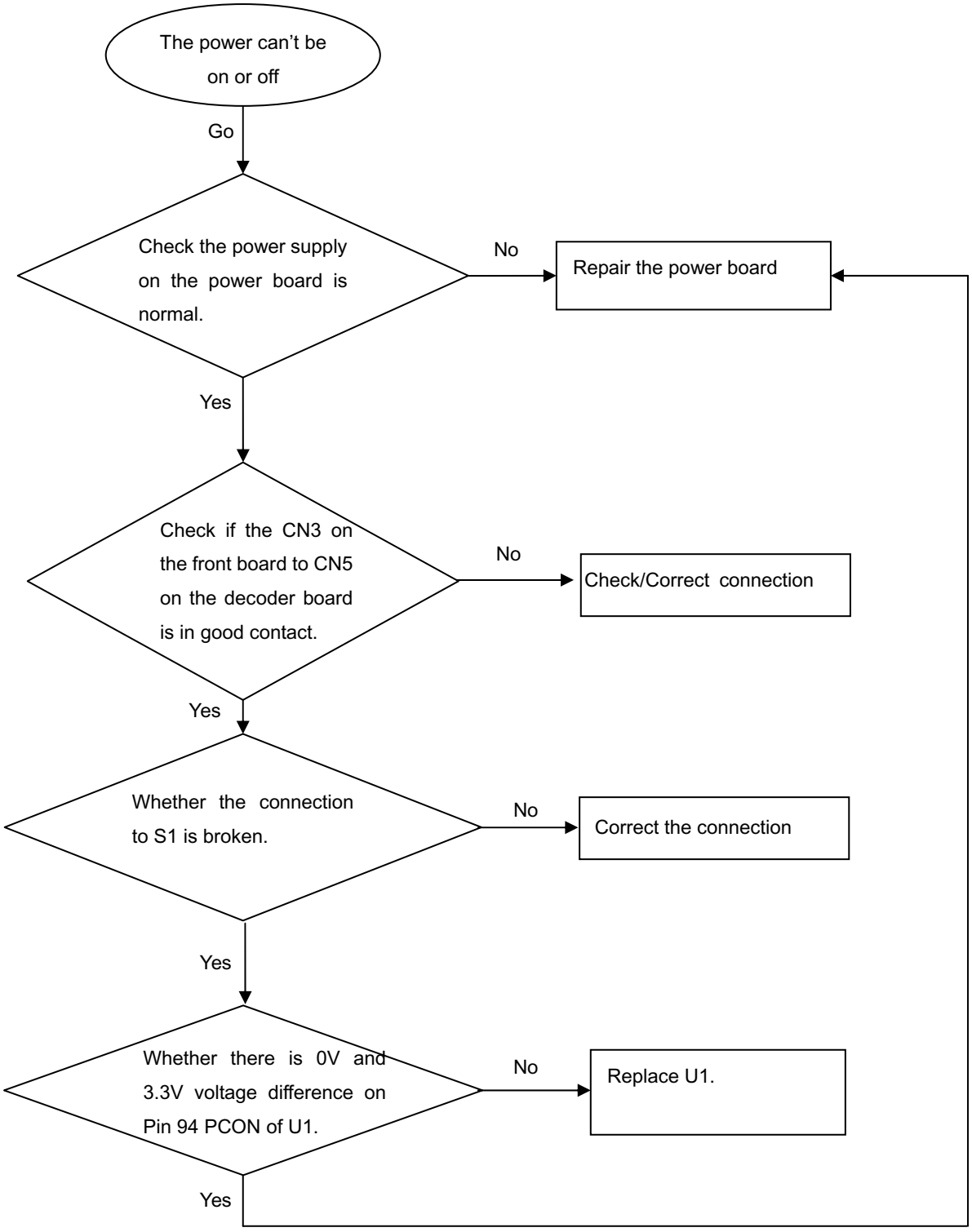
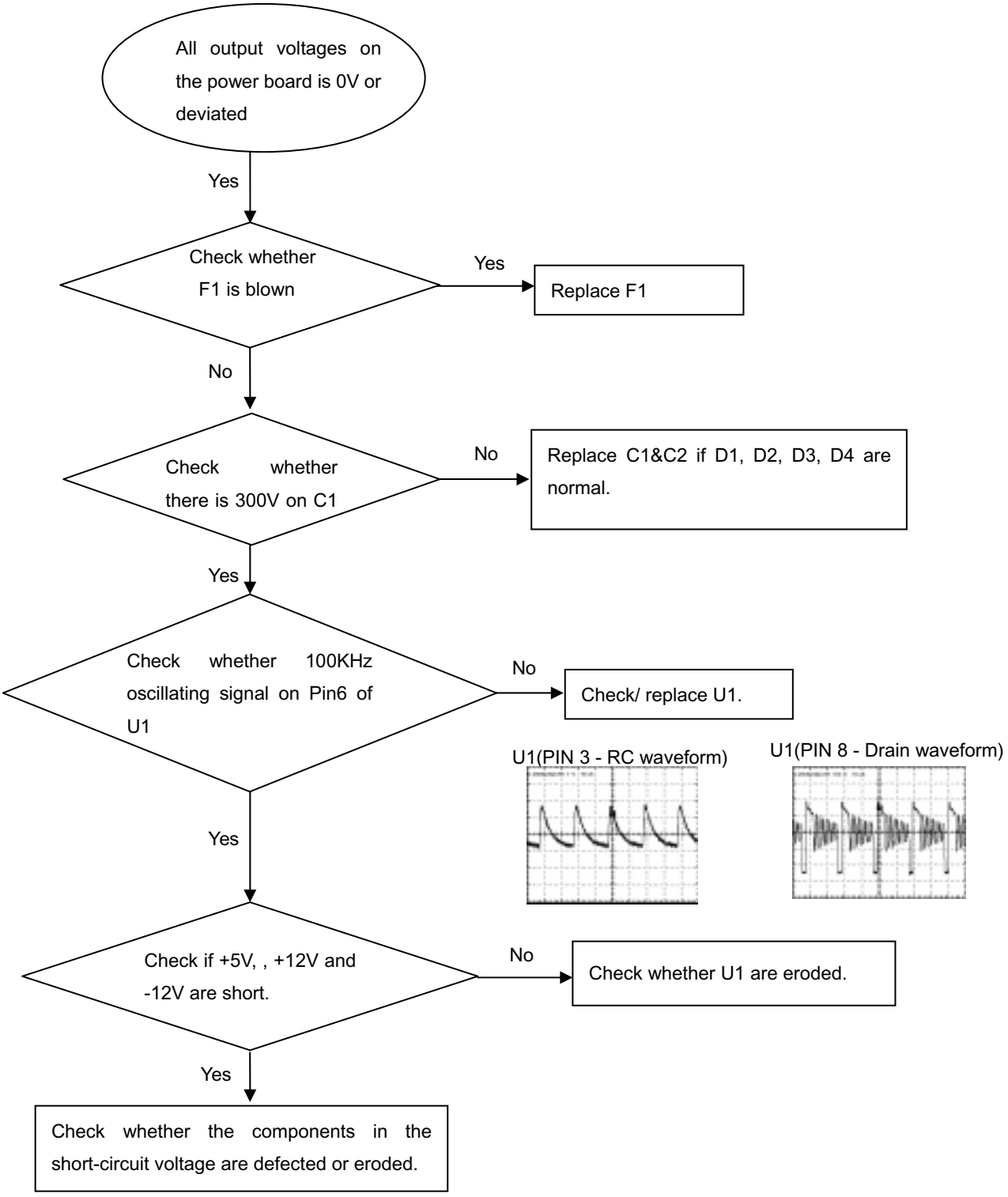
Spindle motor does not move


Motor no move
Go
Check the FFC connection between 24P and the loader.
No
Correct connection
Yes
Check whether “RFA5V” (+5V) voltage is normal.
No
Check the RFA5V power supply
Yes
Check whether laser voltage (2.3V for DVD & 1.9V for CD) on Collector of Q2 and Q3
No
Check/Replace Q2、Q3.
Yes
1.Whether voltage on pin 129 of U1 varies between 0 and 3.3V (3.3V for CD and 0V for DVD),
2.Whether peripheral components are eroded or badly soldered.
No
Check/ Replace U1.
Yes
Have no focus
No
Check U1 182pin FOCUS_PWM signals
2.If there are F+, F-, T+ and T- signals output from U7.
Yes
Check/Replace the loader
FOCUS_PWN waveform

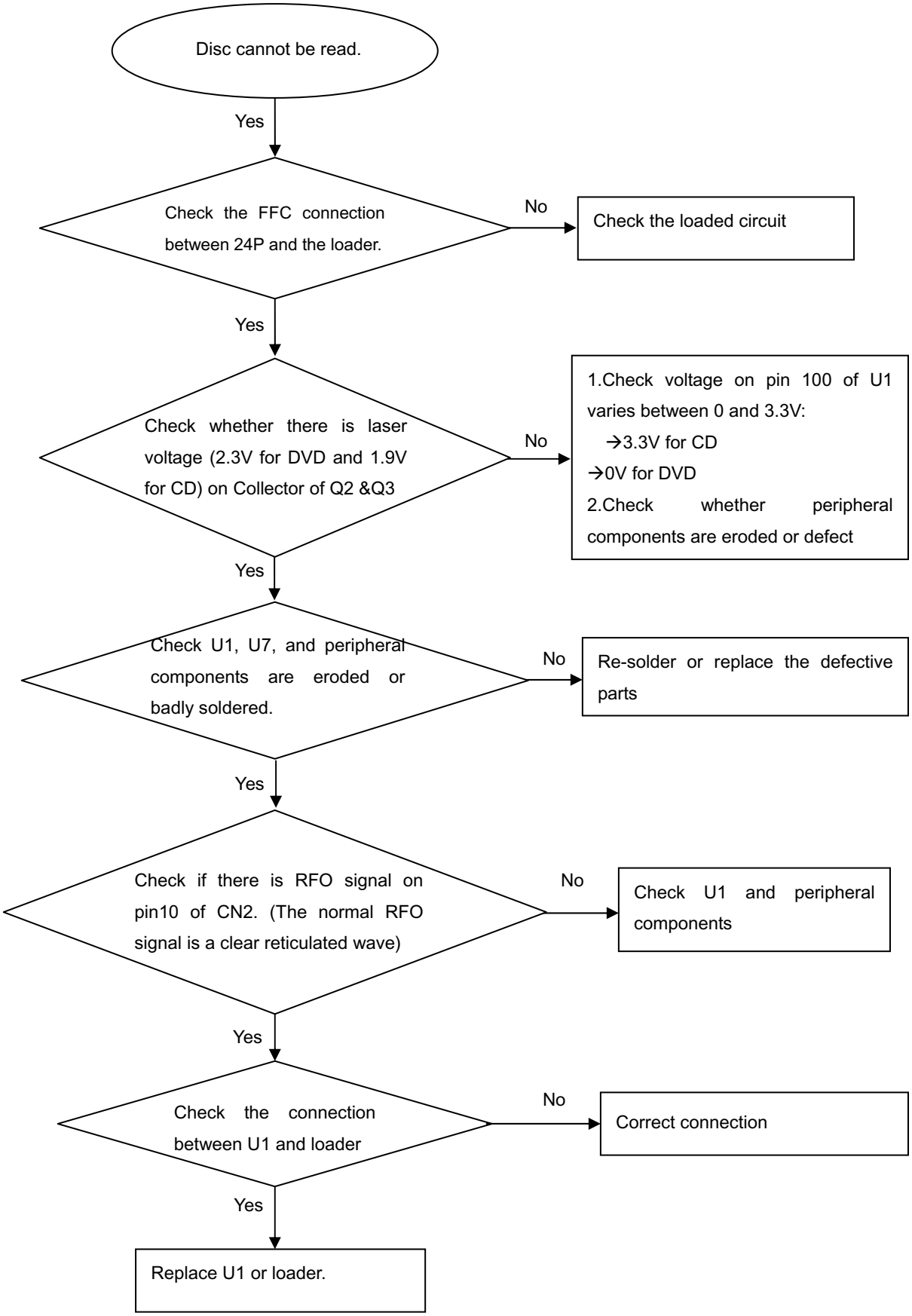
The power can not be on or off


The power can't be on or off
Go
Check the power supply on the power board is normal.
No
Repair the power board
Yes
Check if the CN3 on the front board to CN5 on the decoder board is in good contact.
No
Check/Correct connection
Yes
Whether the connection to S1 is broken.
No
Correct the connection
Yes
Whether there is 0V and 3.3V voltage difference on Pin 94 PCON of U1.
No
Replace U1.
Yes

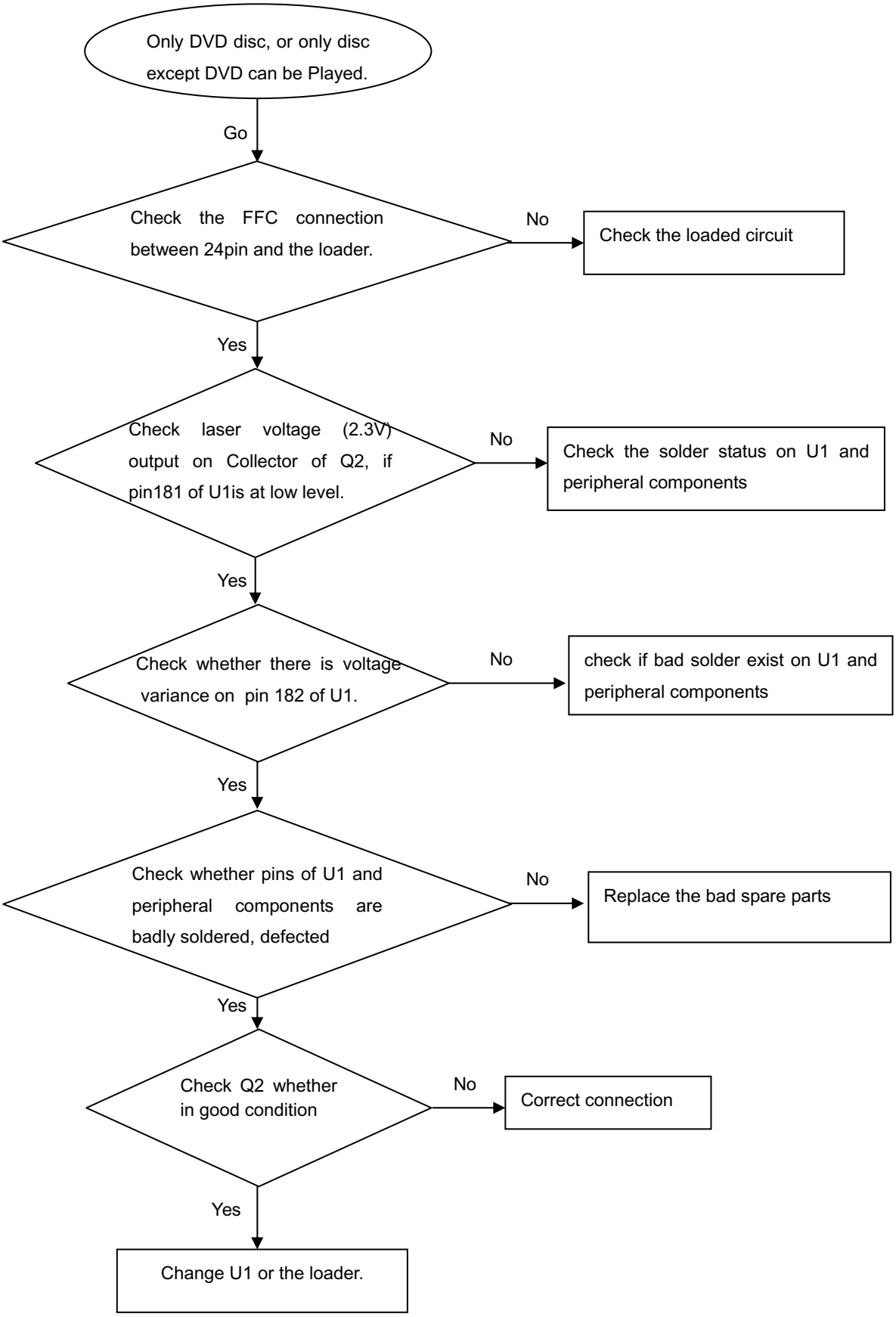
All output voltages on the power board is 0V or deviated.


All output voltages on the power board is 0V or deviated
Yes
Check whether F1 is blown
Yes
Replace F1
No
Check whether there is 300V on C1
No
Replace C1&C2 if D1, D2, D3, D4 are normal.
Yes
Check whether 100KHz oscillating signal on Pin6 of U1
No
Check/ replace U1.
U1(PIN 3 - RC waveform)
U1(PIN 8 - Drain waveform)
Yes
Check if +5V, , +12V and -12V are short.
No
Check whether U1 are eroded.
Yes
Check whether the components in the short-circuit voltage are defected or eroded.

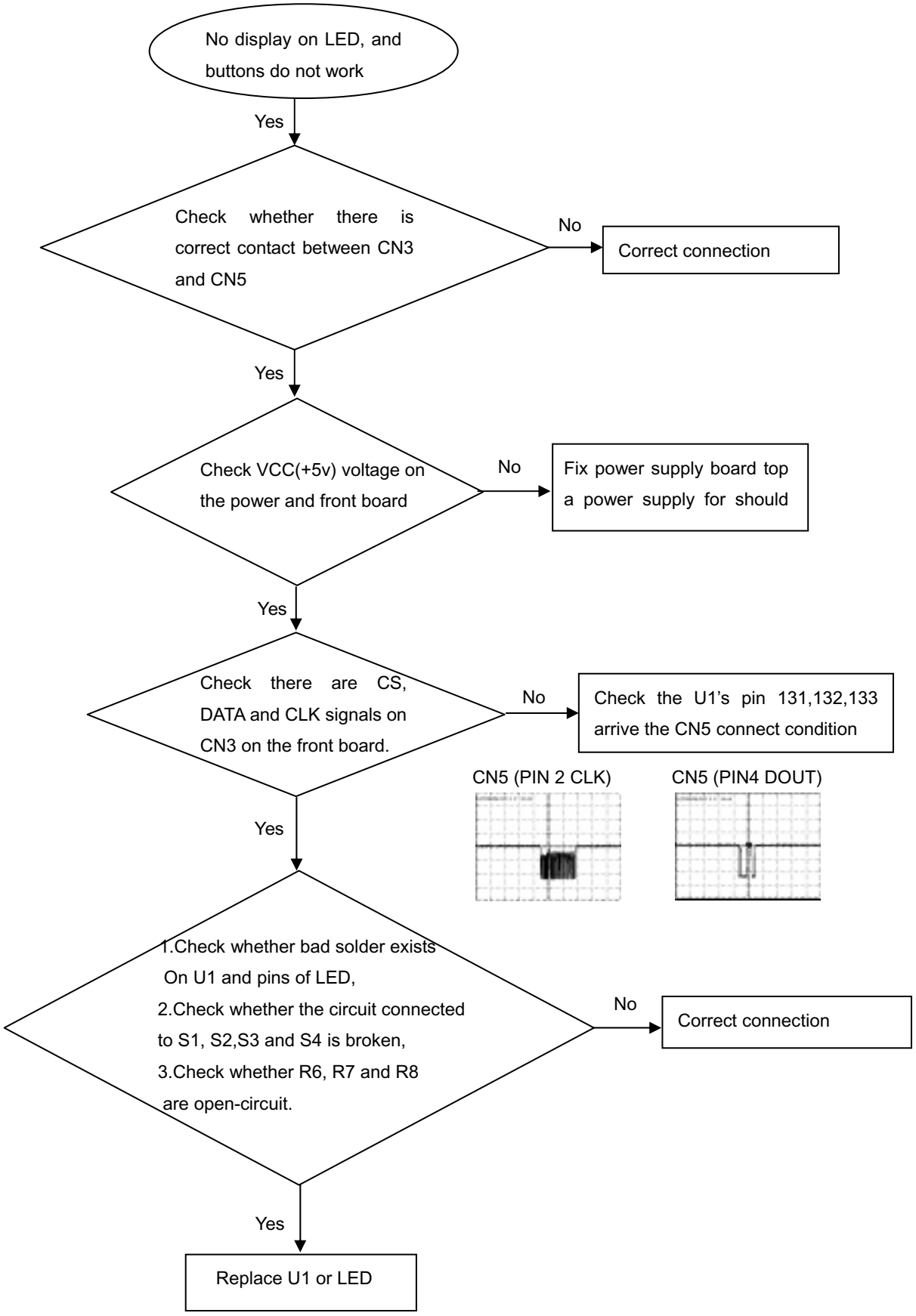
Disc cannot be read.


Disc cannot be read.
Yes
Check the FFC connection between 24P and the loader.
No
Check the loaded circuit
Yes
Check whether there is laser voltage (2.3V for DVD and 1.9V for CD) on Collector of Q2 &Q3
No
1.Check voltage on pin 100 of U1 varies between 0 and 3.3V:
→3.3V for CD
→0V for DVD
2.Check whether peripheral components are eroded or defect
Yes
Check U1, U7, and peripheral components are eroded or badly soldered.
No
Re-solder or replace the defective parts
Yes
Check if there is RFO signal on pin10 of CN2. (The normal RFO signal is a clear reticulated wave)
No
Check U1 and peripheral components
Yes
Check the connection between U1 and loader
No
Correct connection
Yes
Replace U1 or loader.

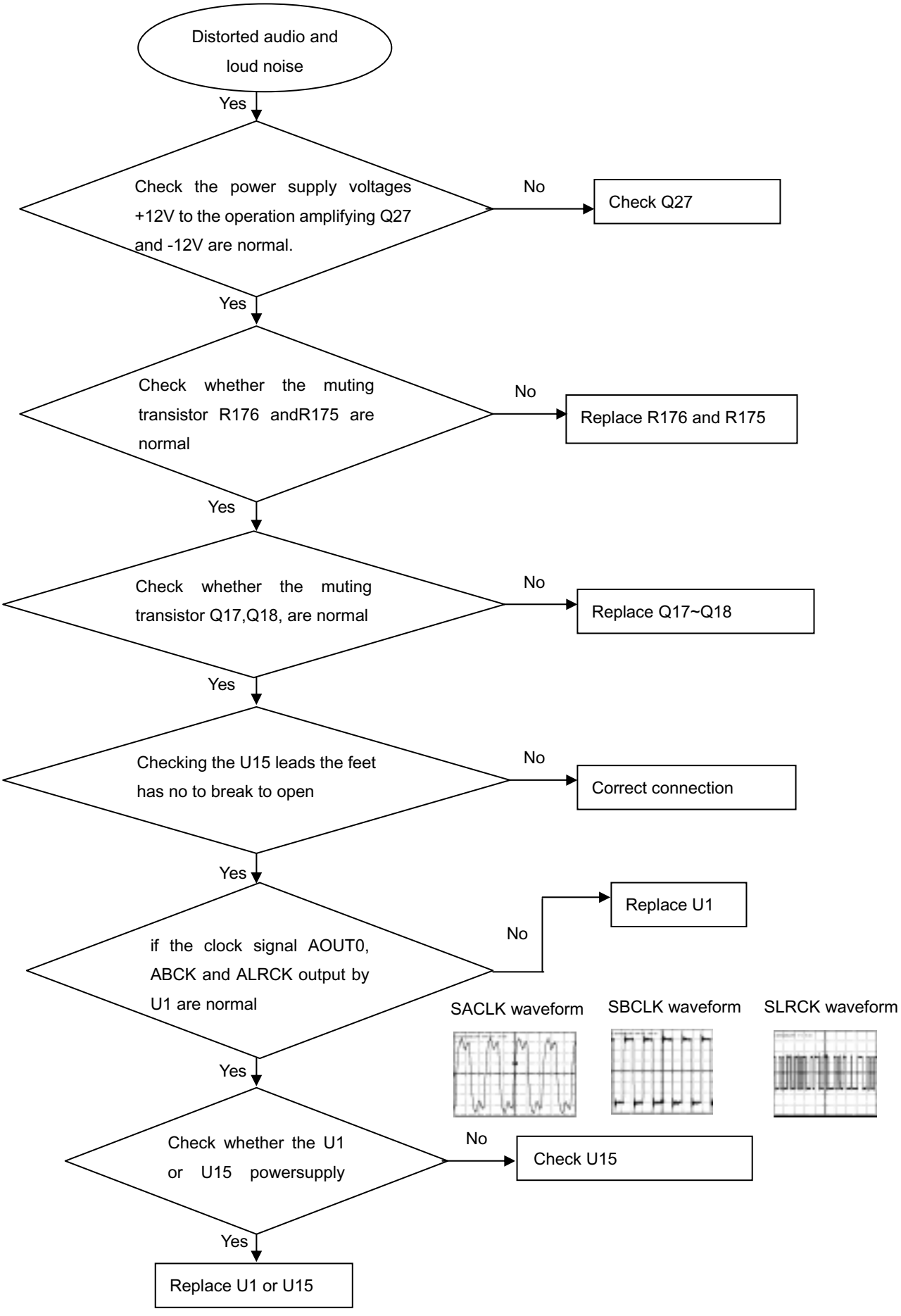
Only DVD disc or only disc except DVD can be played


Only DVD disc, or only disc except DVD can be Played.
Go
Check the FFC connection between 24pin and the loader.
No
Check the loaded circuit
Yes
Check laser voltage (2.3V) output on Collector of Q2, if pin181 of U1is at low level.
No
Check the solder status on U1 and peripheral components
Yes
Check whether there is voltage variance on pin 182 of U1.
No
check if bad solder exist on U1 and peripheral components
Yes
Check whether pins of U1 and peripheral components are badly soldered, defected
No
Replace the bad spare parts
Yes
Check Q2 whether in good condition
No
Correct connection
Yes
Change U1 or the loader.

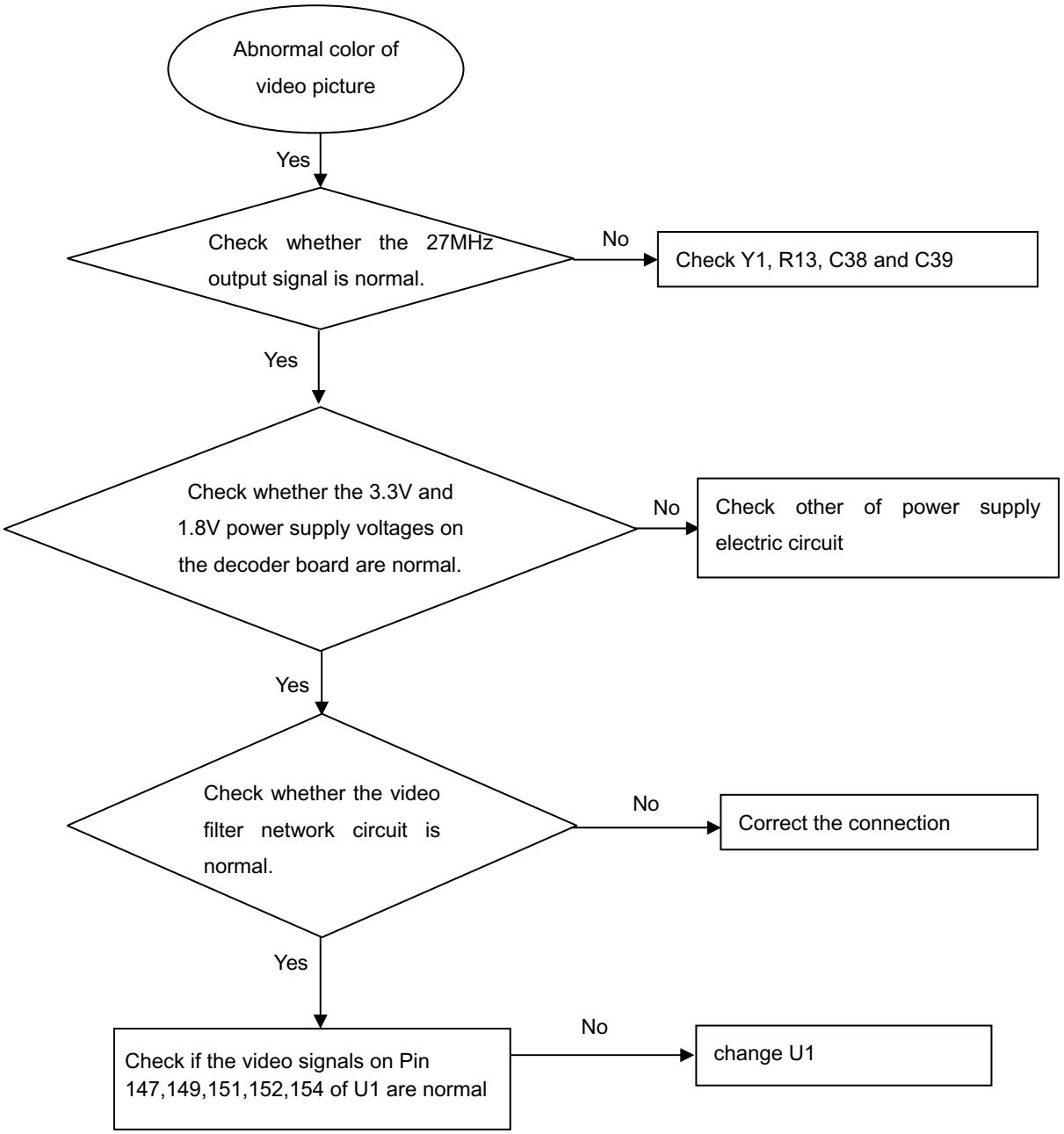
No display on LED, and buttons do not work


No display on LED, and buttons do not work
Yes
Check whether there is correct contact between CN3 and CN5
No
Correct connection
Yes
Check VCC(+5v) voltage on the power and front board
No
Fix power supply board top a power supply for should
Yes
Check there are CS, DATA and CLK signals on CN3 on the front board.
No
Check the U1's pin 131,132,133 arrive the CN5 connect condition
CN5 (PIN 2 CLK)
CN5 (PIN4 DOUT)
Yes
1.Check whether bad solder exists On U1 and pins of LED,
2.Check whether the circuit connected to S1, S2,S3 and S4 is broken,
3.Check whether R6, R7 and R8 are open-circuit.
No
Correct connection
Yes
Replace U1 or LED

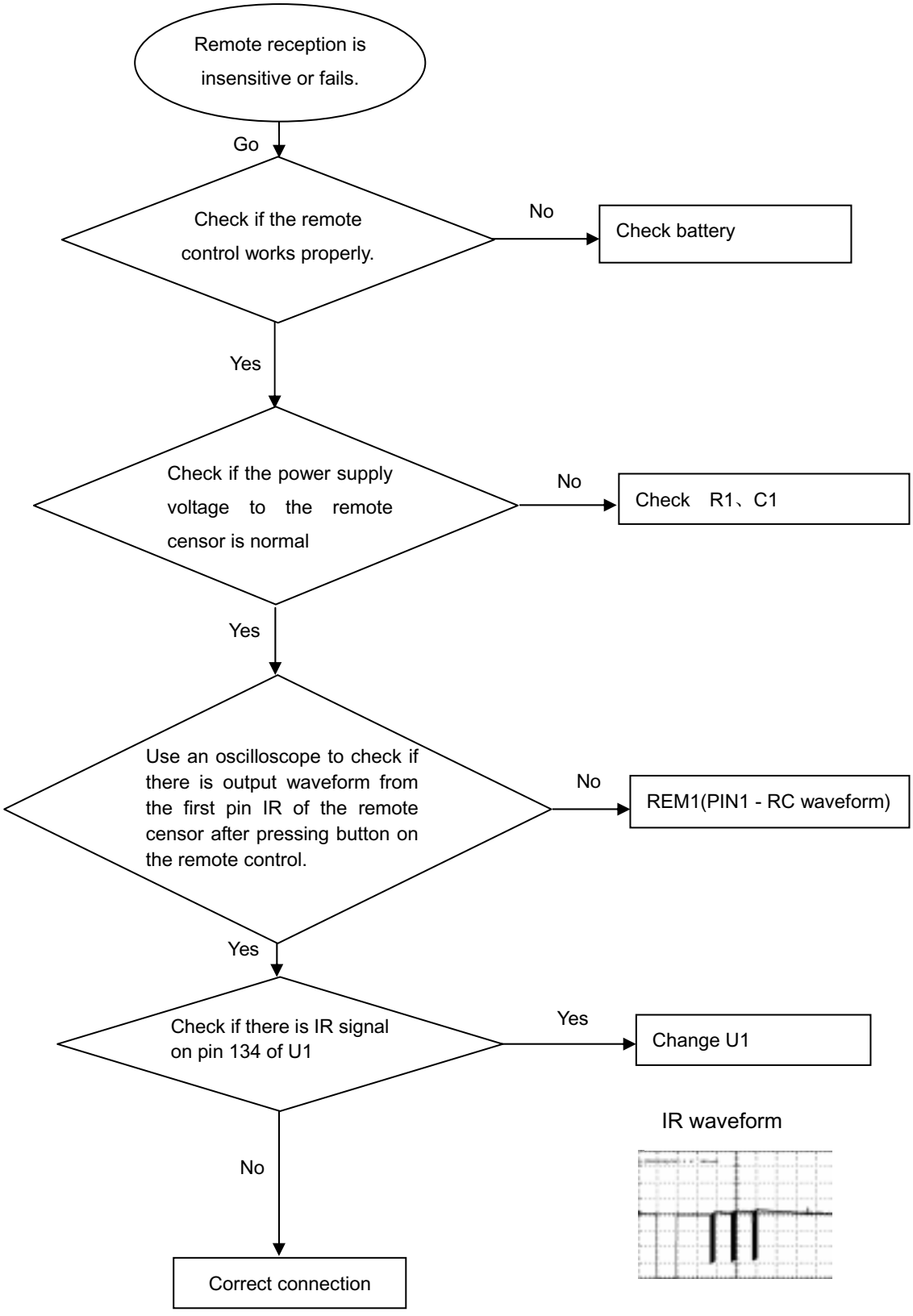
Distorted audio and loud noise



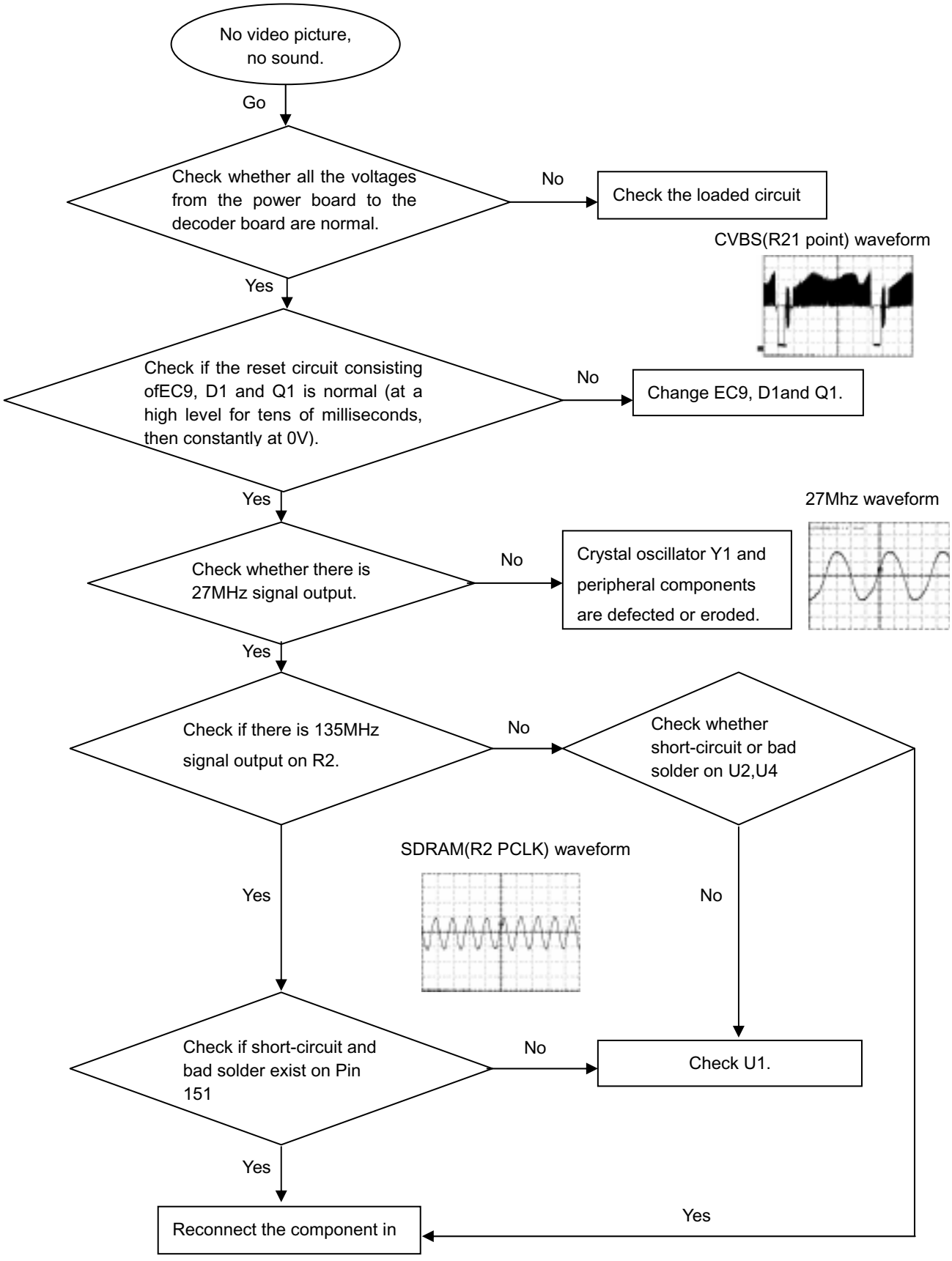
Abnormal color of video picture


Abnormal color of video picture
Yes
Check whether the 27MHz output signal is normal.
No
Check Y1, R13, C38 and C39
Yes
Check whether the 3.3V and 1.8V power supply voltages on the decoder board are normal.
No
Check other of power supply electric circuit
Yes
Check whether the video filter network circuit is normal.
No
Correct the connection
Yes
Check if the video signals on Pin 147,149,151,152,154 of U1 are normal
No
change U1

Remote reception is insensitive or fails.

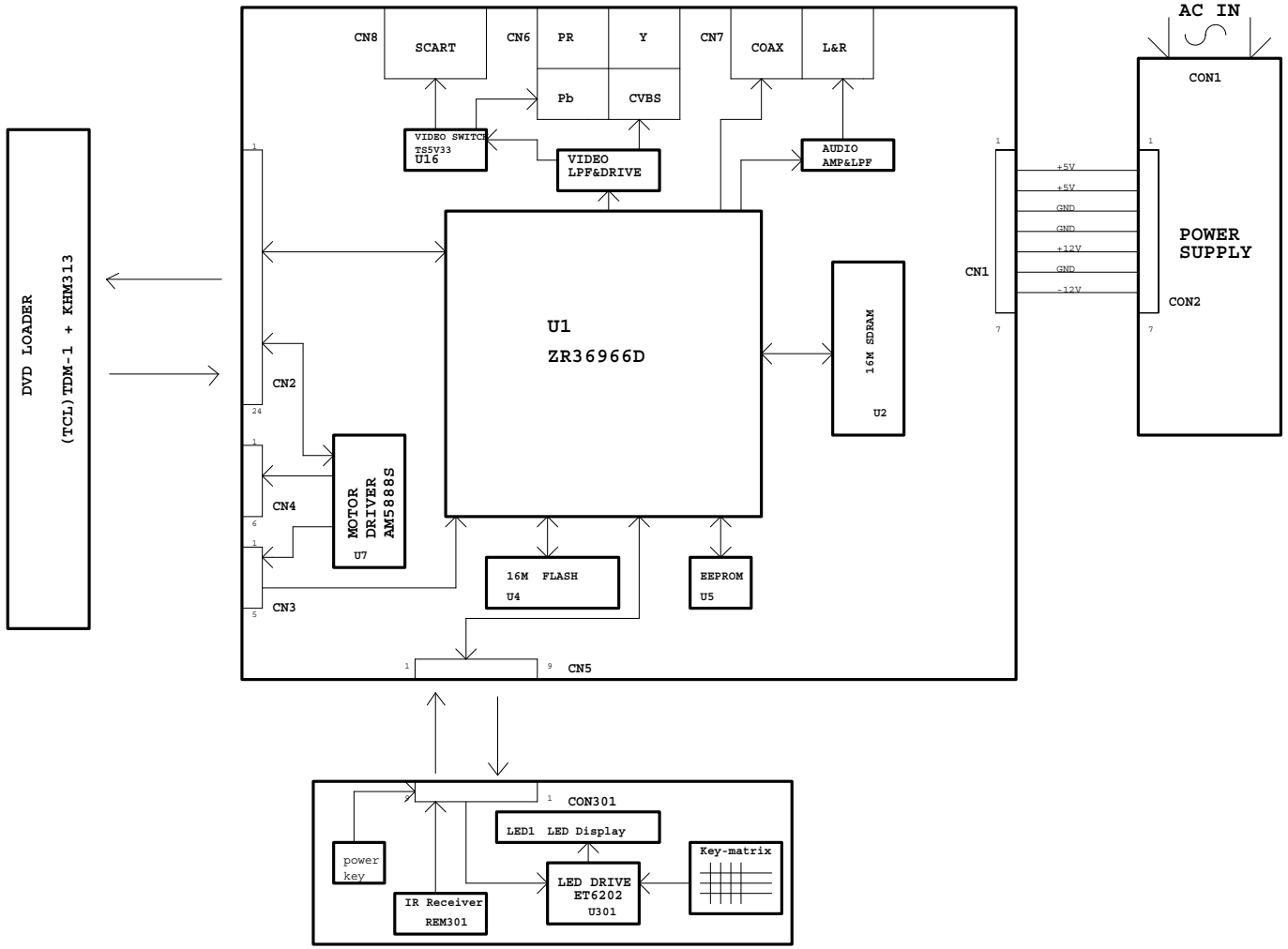

Remote reception is insensitive or fails.
Go
Check if the remote control works properly.
No
Check battery
Yes
Check if the power supply voltage to the remote censor is normal
No
Check R1、C1
Yes
Use an oscilloscope to check if there is output waveform from the first pin IR of the remote censor after pressing button on the remote control.
No
REM1(PIN1 - RC waveform)
Yes
Check if there is IR signal on pin 134 of U1
Yes
Change U1
No
Correct connection
IR waveform

No video picture, no sound.


No video picture, no sound.
Go
Check whether all the voltages from the power board to the decoder board are normal.
No
Check the loaded circuit
CVBS(R21 point) waveform
Yes
Check if the reset circuit consisting ofEC9, D1 and Q1 is normal (at a high level for tens of milliseconds, then constantly at 0V).
No
Change EC9, D1and Q1.
Yes
27Mhz waveform
Check whether there is 27MHz signal output.
No
Crystal oscillator Y1 and peripheral components are defected or eroded.
Yes
Check if there is 135MHz signal output on R2.
No
Check whether short-circuit or bad solder on U2,U4
SDRAM(R2 PCLK) waveform
Yes
No
Check if short-circuit and bad solder exist on Pin 151
No
Check U1.
Yes
Reconnect the component in
Yes

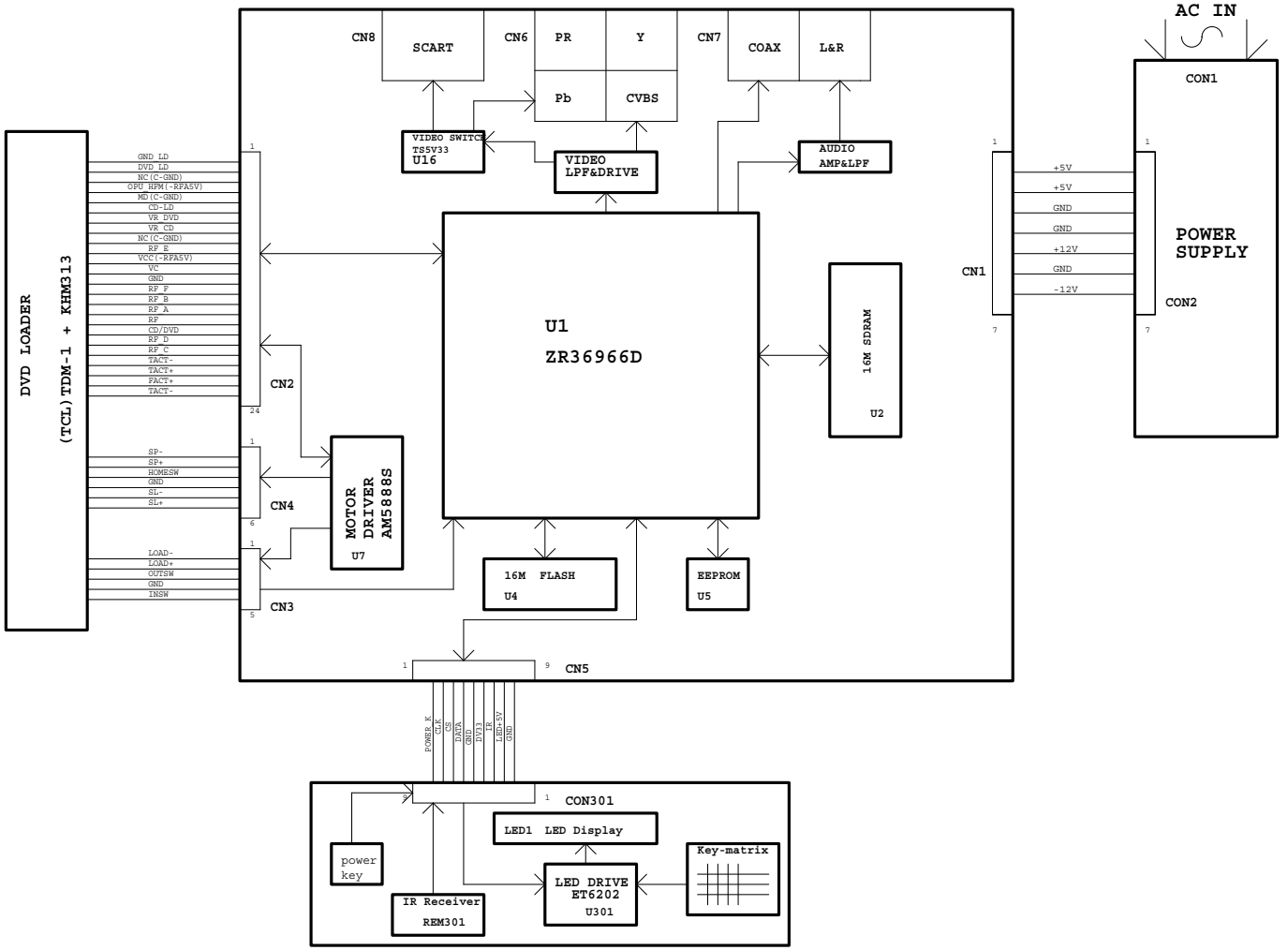
2-1

SD-170EKB2 & SD-170EKE2 BLOCK DIAGRAM



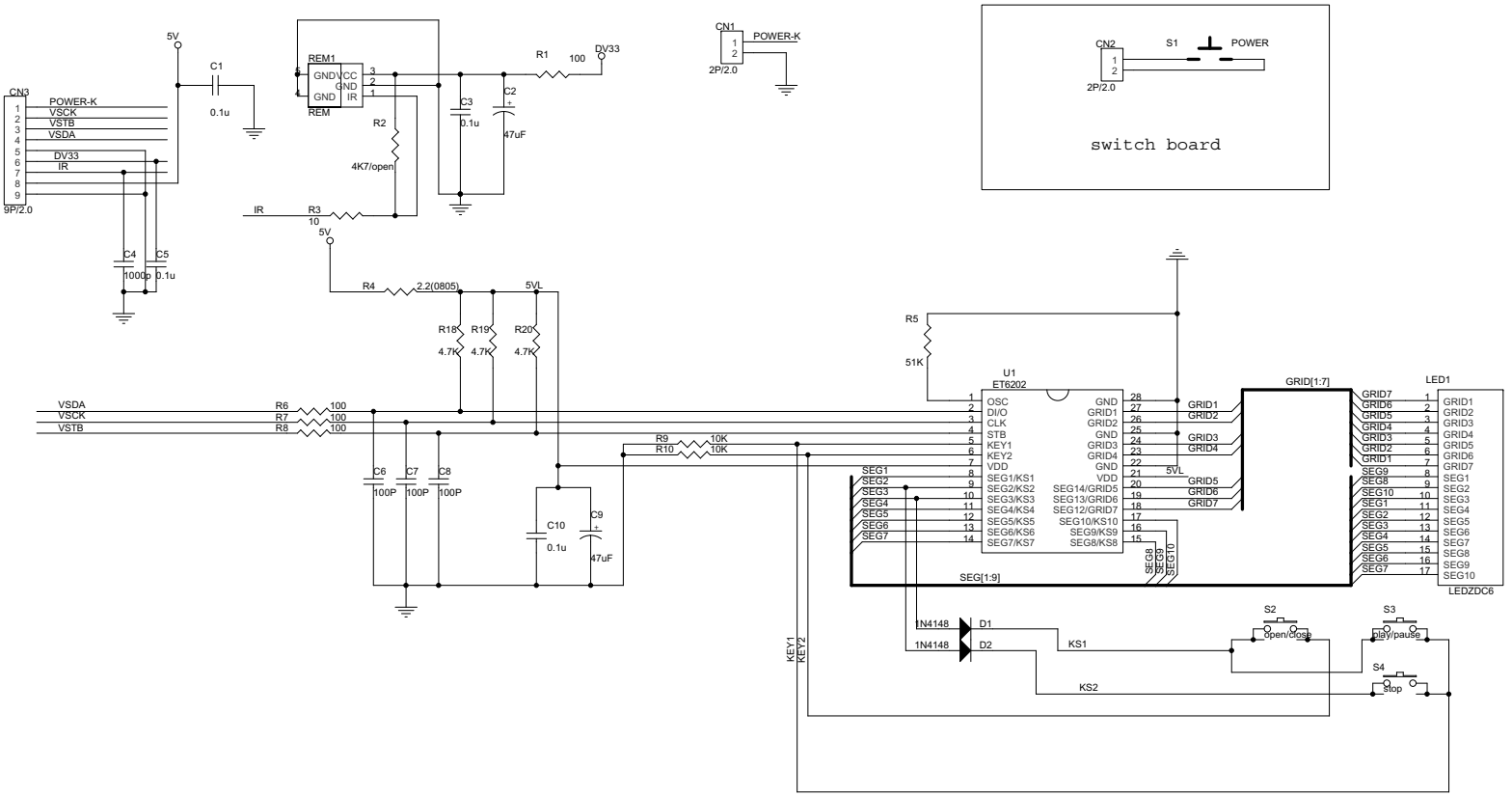
3-1

SD-170EKB2 & SD-170EKE2 WIRING DIAGRAM



4-1

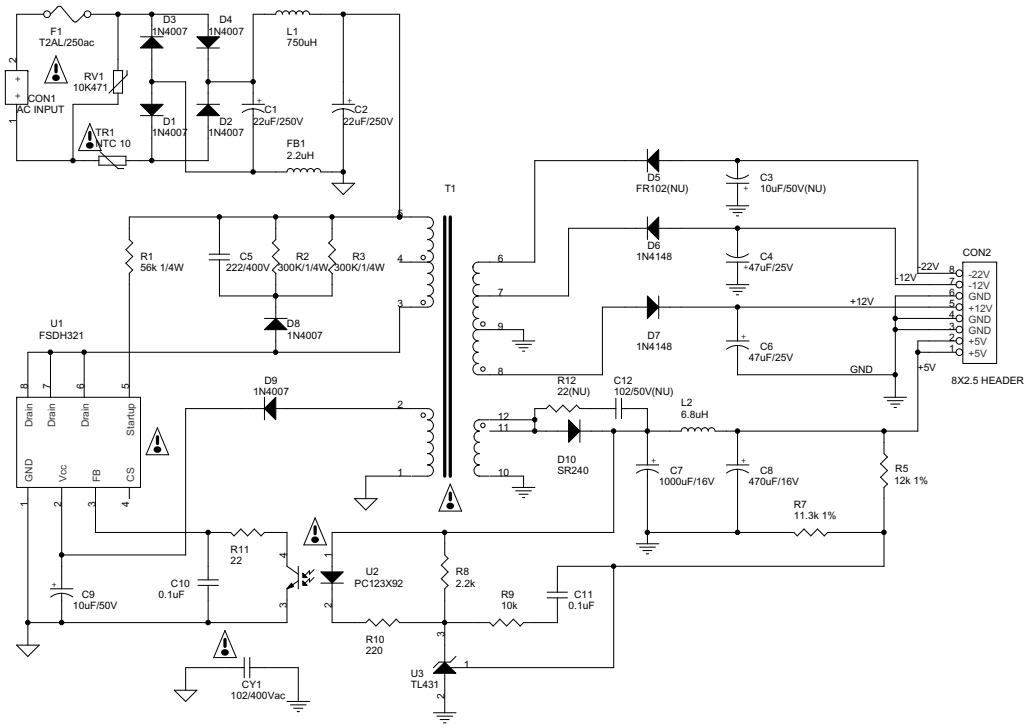
Front Board Electric Diagram for SD-170EKB2 & SD-170EKE2



C1	A1
C10	A2
C11	A2
C12	A2
C13	A2
C14	A2
C15	A2
C16	A2
C17	B2
C18	B2
C2	A1
C3	A1
C4	A1
C5	A1
C6	A1
C7	A1
C8	A1
C9	A1
CN1	B1
CN3	A1
CN4	A3
D1	B2
D2	B2
EC1	A2
EC2	A2
J1	A3
L1	A2
LED1	C1
MIC1	A2
R1	A1
R10	A1
R11	A2
R12	A2
R13	A2
R14	B2
R15	B2
R16	B2
R17	A2
R18	A1
R19	A1
R2	A1
R20	A1
R3	A1
R4	A1
R5	B1
R6	A1
R7	A1
R8	A1
R9	A1
REM1	A1
RP1	A2
S2	B2
S3	C2
S4	C2
U1	B1
U2A	A2
U2B	A2
X13	B2
CN2	A1
S1	A1

4-2

Power Board Electric Diagram for SD-170EKB2 & SD-170EKE2

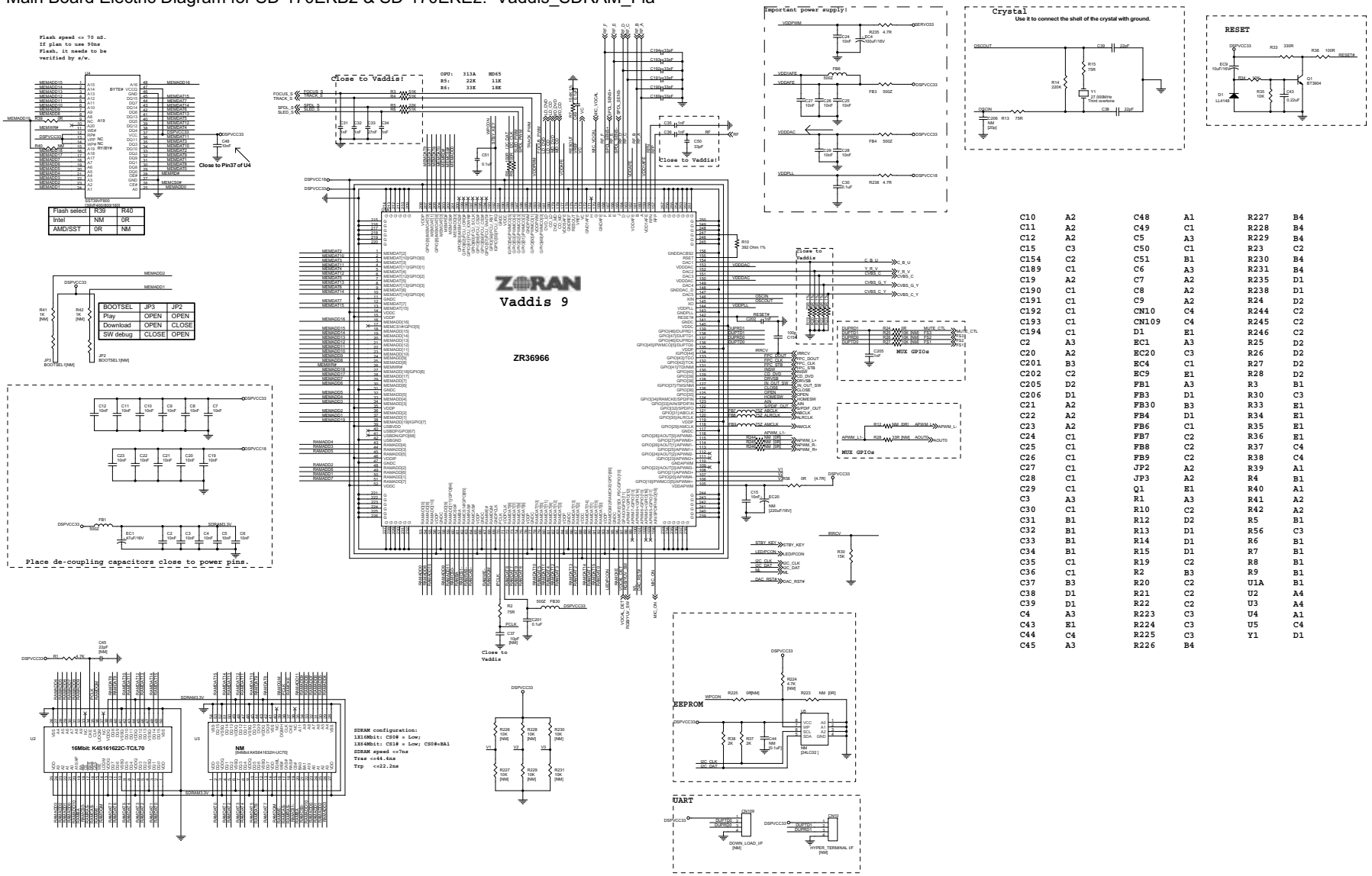


*** CAUTION :**
THE PARTS MARKED WITH ⚠ ARE IMPORTANT PARTS ON THE SAFETY.
PLEASE USE THE PARTS HAVING THE DESIGNATED PARTS NUMBER WITHOUT FAIL.

C1	A 1
C10	A 2
C11	A 2
C12	A 1
C2	A 1
C3	B 1
C4	B 1
C5	A 1
C6	B 1
C7	A 1
C8	B 1
C9	A 2
CON1	A 1
CON2	B 1
CY1	A 2
D1	A 1
D10	A 1
D2	A 1
D3	A 1
D4	A 1
D5	A 1
D6	A 1
D7	A 1
D8	A 1
D9	A 1
F1	A 1
FB1	A 1
L1	A 1
L2	A 1
R1	A 1
R10	A 2
R11	A 1
R12	A 1
R2	A 1
R3	A 1
R5	B 1
R7	B 1
R8	A 2
R9	A 2
RV1	A 1
T1	A 1
TR1	A 1
U1	A 1
U2	A 2
U3	A 2
U4	A 2

4-3

Main Board Electric Diagram for SD-170EKB2 & SD-170EKE2: Vaddis_SDRAM_Fla



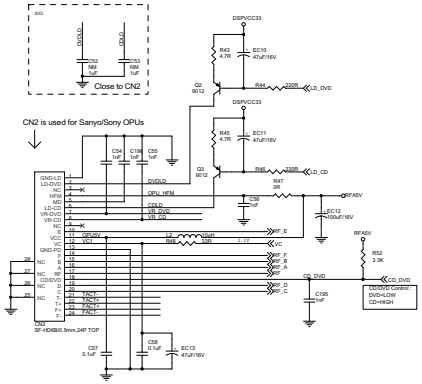
Flash select	R39	R40
Intel	NM	0R
AMD/SST	0R	NM

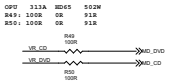
BOOTSEL	JP3	JP2
Play	OPEN	OPEN
Download	OPEN	CLOSE
SW debug	CLOSE	OPEN

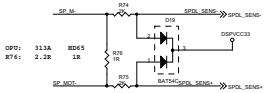
C10	A2	C48	A1	R227	B4
C11	A2	C49	C1	R228	B4
C12	A2	C5	A3	R229	B4
C15	C3	C50	C1	R23	C2
C154	C2	C51	B1	R230	B4
C189	C1	C6	A3	R231	B4
C19	A2	C7	A2	R235	D1
C190	C1	C8	A2	R238	D1
C191	C1	C9	A2	R24	D2
C192	C1	CN10	C4	R244	C2
C193	C1	CN109	C4	R245	C2
C194	C1	D1	E1	R246	C2
C2	A3	EC1	A3	R25	D2
C20	A2	EC20	C3	R26	D2
C201	B3	EC4	C1	R27	D2
C202	C2	EC9	E1	R28	D2
C205	D2	FB1	A3	R3	B1
C206	D1	FB3	D1	R30	C3
C21	A2	FB30	B3	R33	E1
C22	A2	FB4	D1	R34	E1
C23	A2	FB6	C1	R35	E1
C24	C1	FB7	C2	R36	E1
C25	C1	FB8	C2	R37	C4
C26	C1	FB9	C2	R38	C4
C27	C1	JP2	A2	R39	A1
C28	C1	JP3	A2	R4	B1
C29	C1	Q1	E1	R40	A1
C3	A3	R1	A3	R41	A2
C30	C1	R10	C2	R42	A2
C31	B1	R12	D2	R5	B1
C32	B1	R13	D1	R56	C3
C33	B1	R14	D1	R6	B1
C34	B1	R15	D1	R7	B1
C35	C1	R19	C2	R8	B1
C36	C1	R2	B3	R9	B1
C37	B3	R20	C2	U1A	B1
C38	D1	R21	C2	U2	A4
C39	D1	R22	C2	U3	A4
C4	A3	R223	C3	U4	A1
C43	E1	R224	C3	U5	C4
C44	C4	R225	C3	Y1	D1
C45	A3	R226	B4		

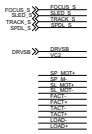
4-4

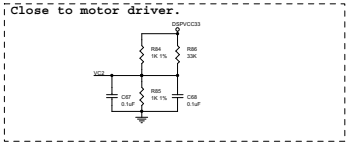
Main Board Electric Diagram for SD-170EKB2 & SD-170EKE2: Front end

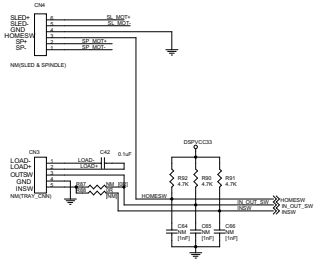


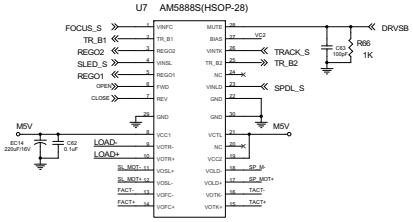


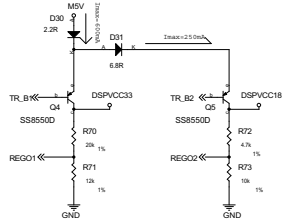








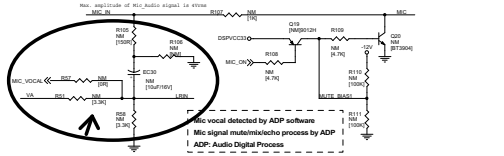


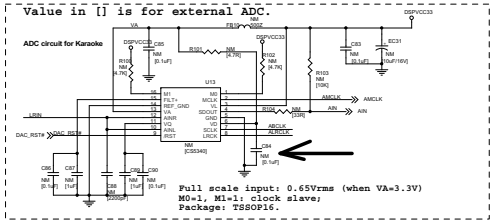


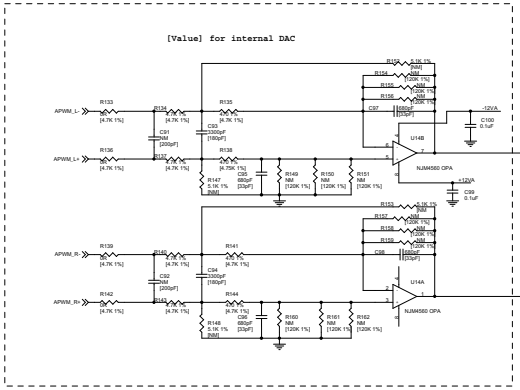
C195	A1
C196	A1
C42	A3
C52	A1
C53	A1
C54	A1
C55	A1
C56	A1
C57	A2
C58	A2
C62	B3
C63	C3
C64	A3
C65	A3
C66	A3
C67	C2
C68	C2
CN2	A1
CN3	A3
CN4	A3
D19	C1
D30	C3
D31	C3
EC10	A1
EC11	A1
EC12	A1
EC13	A2
EC14	B3
L2	A1
Q2	A1
Q3	A1
Q4	C3
Q5	D3
R43	A1
R44	A1
R45	A1
R46	A1
R47	A1
R48	A1
R49	B1
R50	B1
R52	A1
R66	C3
R70	C3
R71	C3
R72	D3
R73	D3
R74	C1
R75	C1
R76	C1
R84	C2
R85	C2
R86	C2
R87	A3
R88	A3
R90	A3
R91	A3
R92	A3
U7	B3

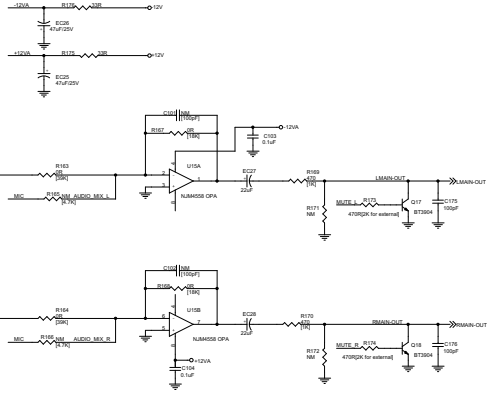
4-5

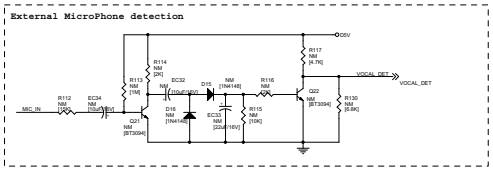
Main Board Electric Diagram for SD-170EKB2 & SD-170EKE2: Audio Input_Output



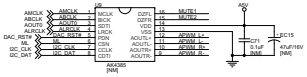

Value in [] is for external ADC.
ADC circuit for Karaoke
Full scale input: 0.65Vrms (when VA=3.3V)
M0=1, M1=1: clock slave;
Package: TSSOP16.





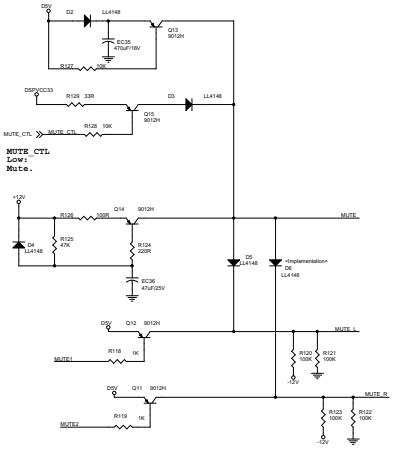


MUTE1 and MUTE2:
Should configurate the DZFB bit to enable High when Zero detected.



Value in [] is for 2 channel external DAC.

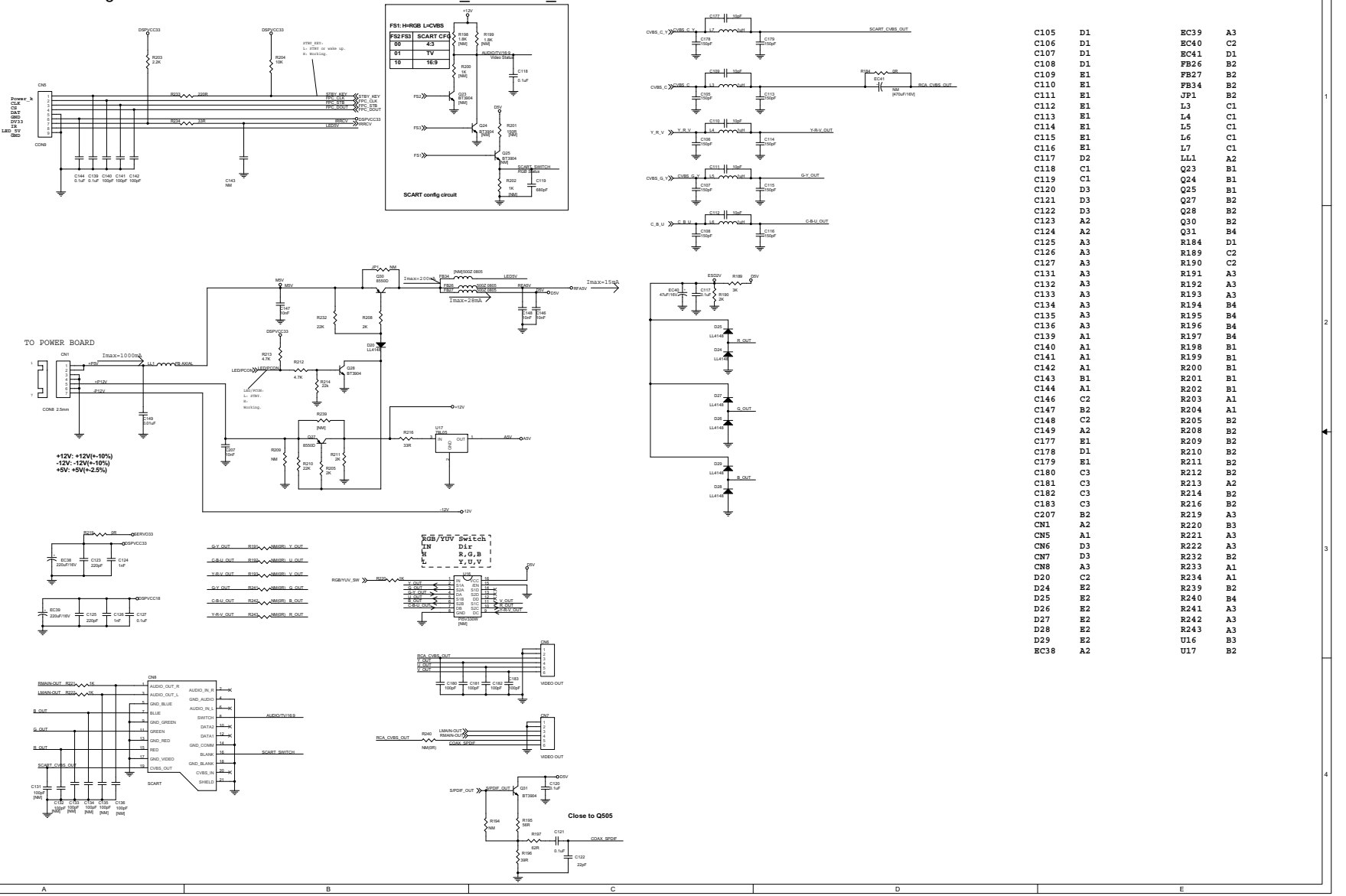
MUTE_CTL
Low:
Mute.



C100	C1	Q15	B3	R147	C1
C101	D1	Q17	E1	R148	C2
C102	D1	Q18	E2	R149	C1
C103	D1	Q19	A1	R150	C1
C104	D2	Q20	B1	R151	C1
C175	E1	Q21	A2	R152	C1
C176	E2	Q22	A2	R153	C1
C71	A3	R100	A1	R154	C1
C83	A1	R101	A1	R155	C1
C84	A2	R102	A1	R156	C1
C85	A1	R103	A1	R157	C1
C86	A2	R104	A1	R158	C1
C87	A2	R105	A1	R159	C1
C88	A2	R106	A1	R160	C2
C89	A2	R107	A1	R161	C2
C90	A2	R108	A1	R162	C2
C91	C1	R109	A1	R163	D1
C92	C2	R110	B1	R164	D2
C93	C1	R111	B1	R165	D1
C94	C2	R112	A2	R166	D2
C95	C1	R113	A2	R167	D1
C96	C2	R114	A2	R168	D1
C97	C1	R115	A2	R169	D1
C98	C1	R116	A2	R170	D2
C99	C1	R117	A2	R171	D1
CN9	A3	R118	B4	R172	D2
D15	A2	R119	B4	R173	E1
D16	A2	R120	B4	R174	E2
D2	B3	R121	B4	R175	D1
D3	B3	R122	B4	R176	D1
D4	B3	R123	B4	R51	A1
D5	B3	R124	B3	R57	A1
D6	B3	R125	B3	R58	A1
EC15	A3	R126	B3	U13	A1
EC25	D1	R127	B3	U14A	C2
EC26	D1	R128	B3	U14B	C1
EC27	D1	R129	B3	U15A	D1
EC28	D2	R130	A2	U15B	D2
EC30	A1	R133	B1	U9	A3
EC31	B1	R134	C1		
EC32	A2	R135	C1		
EC33	A2	R136	B1		
EC34	A2	R137	C1		
EC35	B3	R138	C1		
EC36	B3	R139	B1		
FB10	A1	R140	C1		
Q11	B4	R141	C1		
Q12	B4	R142	B2		
Q13	B3	R143	C2		
Q14	B3	R144	C2		

4-6

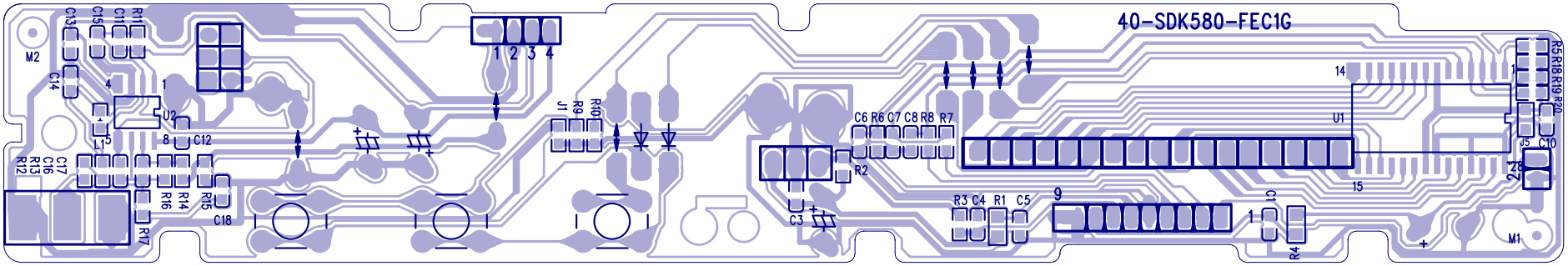
Main Board Electric Diagram for SD-170EKB2 & SD-170EKE2: Power_Video Out_



C105	D1	EC39	A3
C106	D1	EC40	C2
C107	D1	EC41	D1
C108	D1	FB26	B2
C109	E1	FB27	B2
C110	E1	FB34	B2
C111	E1	JP1	B2
C112	E1	L3	C1
C113	E1	L4	C1
C114	E1	L5	C1
C115	E1	L6	C1
C116	E1	L7	C1
C117	D2	LL1	A2
C118	C1	Q23	B1
C119	C1	Q24	B1
C120	D3	Q25	B1
C121	D3	Q27	B2
C122	D3	Q28	B2
C123	A2	Q30	B2
C124	A2	Q31	B4
C125	A3	R184	D1
C126	A3	R189	C2
C127	A3	R190	C2
C131	A3	R191	A3
C132	A3	R192	A3
C133	A3	R193	A3
C134	A3	R194	B4
C135	A3	R195	B4
C136	A3	R196	B4
C139	A1	R197	B4
C140	A1	R198	B1
C141	A1	R199	B1
C142	A1	R200	B1
C143	B1	R201	B1
C144	A1	R202	B1
C146	C2	R203	A1
C147	B2	R204	A1
C148	C2	R205	B2
C149	A2	R208	B2
C177	E1	R209	B2
C178	D1	R210	B2
C179	E1	R211	B2
C180	C3	R212	B2
C181	C3	R213	A2
C182	C3	R214	B2
C183	C3	R216	B2
C207	B2	R219	A3
CN1	A2	R220	B3
CN5	A1	R221	A3
CN6	D3	R222	A3
CN7	D3	R232	B2
CN8	A3	R233	A1
D20	C2	R234	A1
D24	B2	R239	B2
D25	B2	R240	B4
D26	B2	R241	A3
D27	B2	R242	A3
D28	B2	R243	A3
D29	B2	U16	B3
EC38	A2	U17	B2

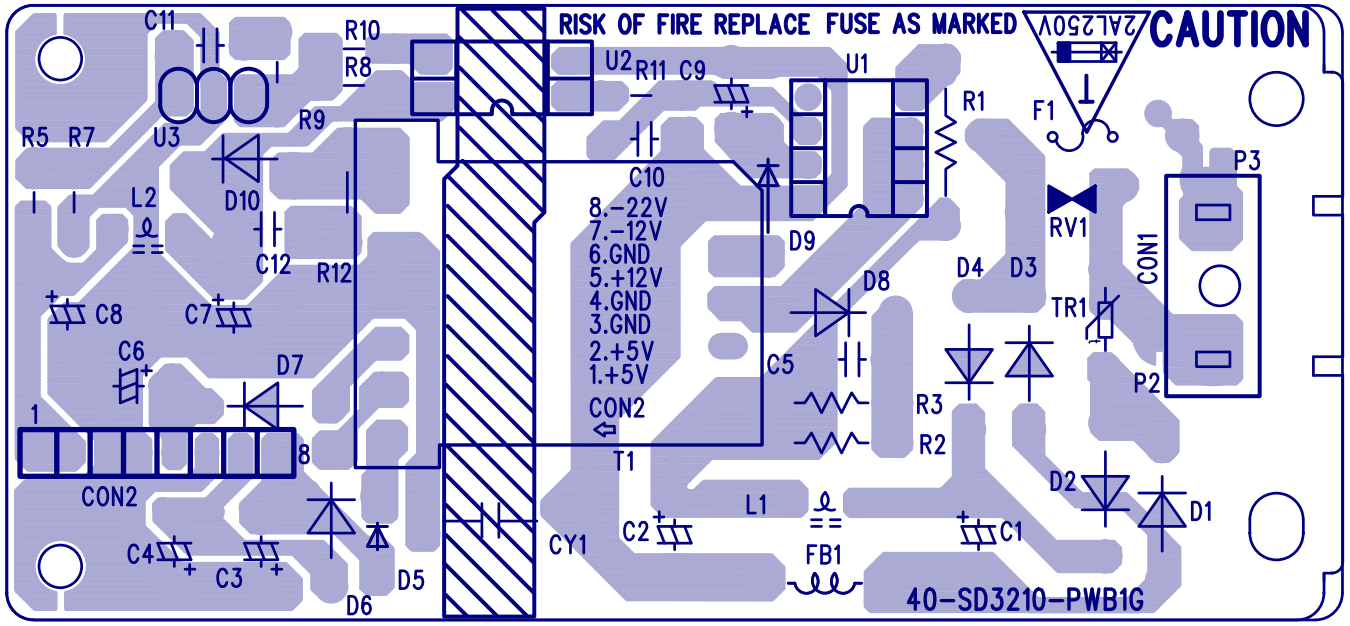
5-1

Front Board Print-Layout (Bottom Side) for SD-170EKB2 & SD-170EKE2



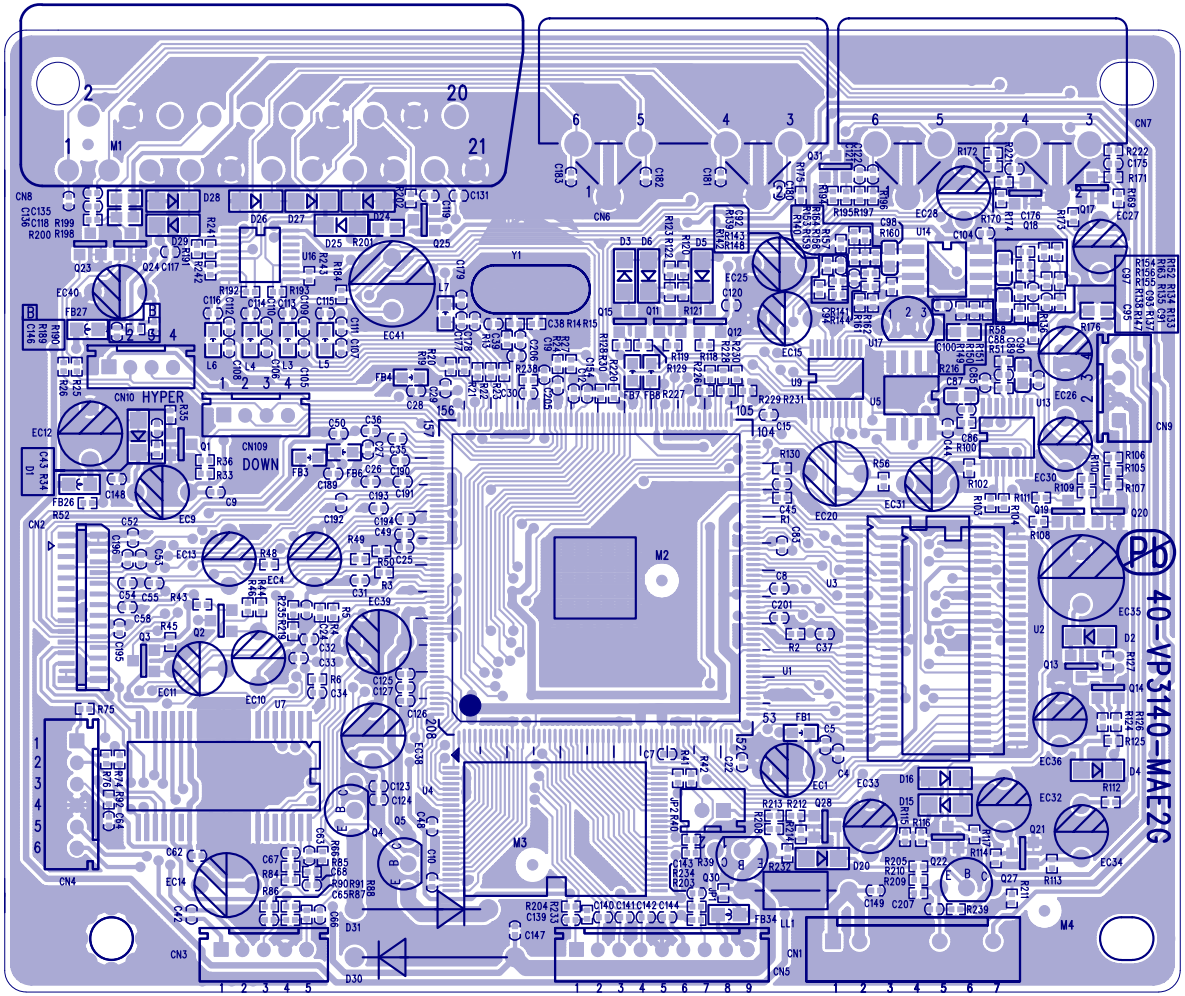
5-2

Power Board Print-Layout (Bottom Side) for SD-170EKB2 & SD-170EKE2



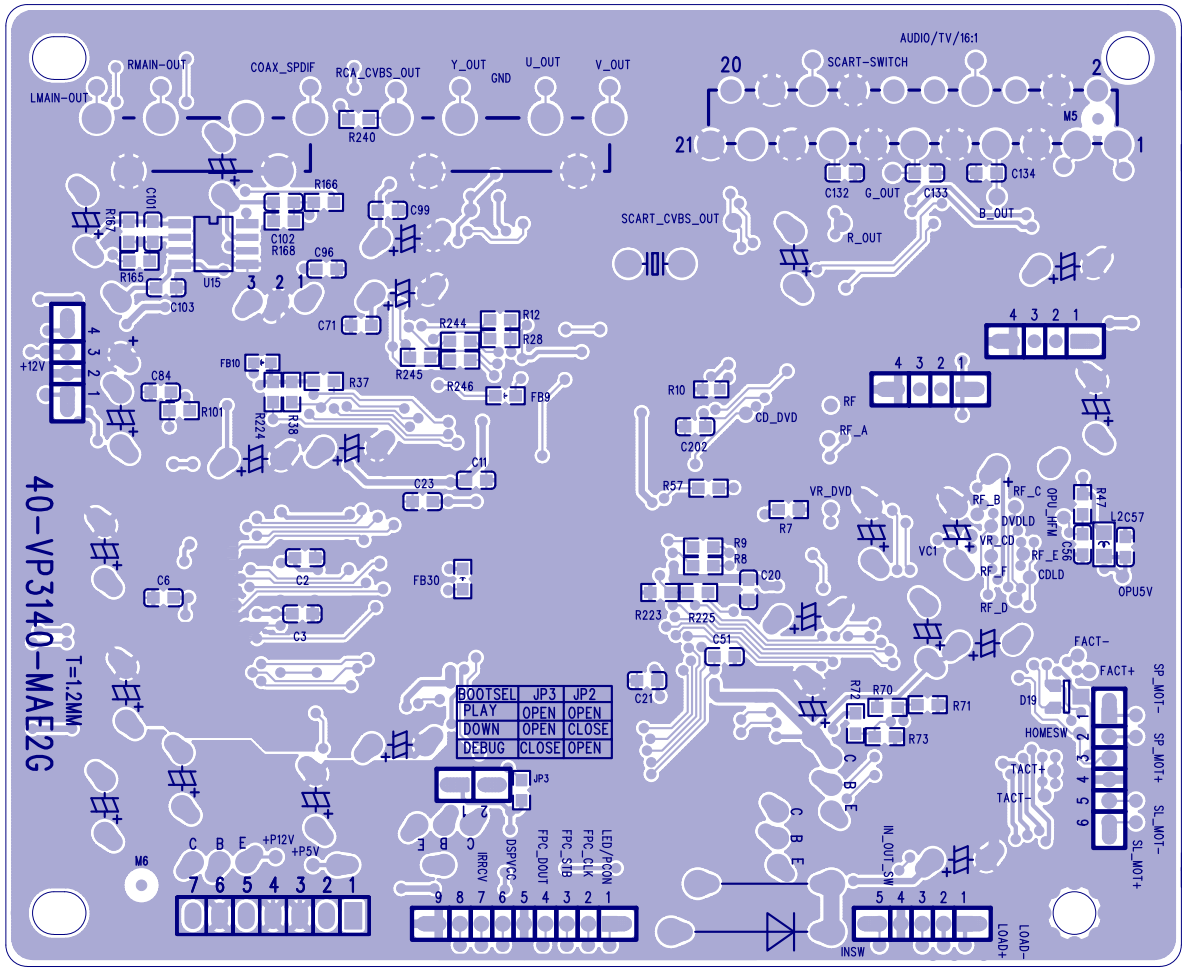
5-3

Main Board Print-Layout (Top Side) for SD-170EKB2 & SD-170EKE2

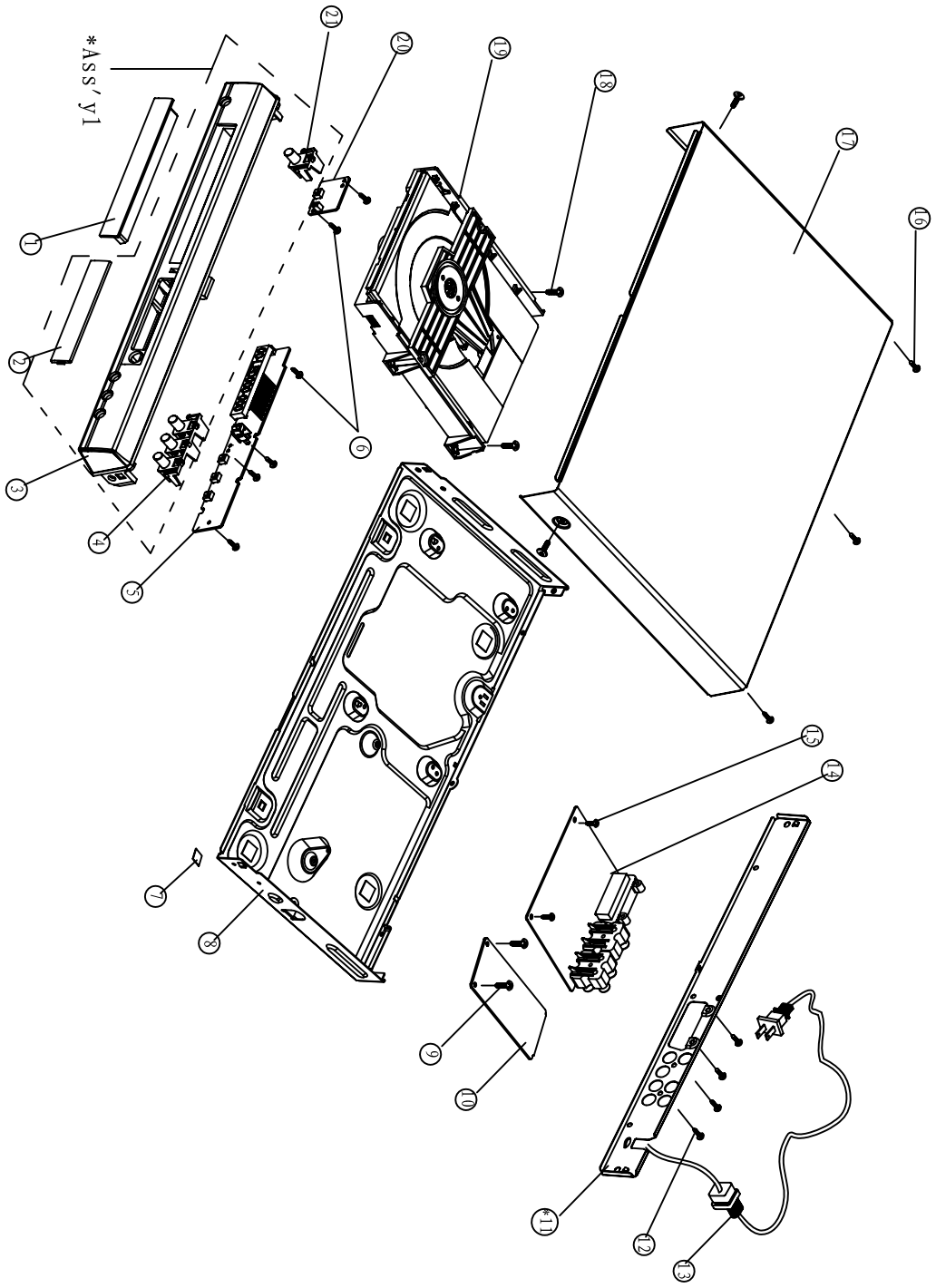


5-4

Main Board Print-Layout (Bottom Side) for SD-170EKB2 & SD-170EKE2



SD-170EKB2 & SD-170EKE2 Mechanical Exploded View



*Note Rear Cabinet (11) is not service available due to attached rating label.
Ass'y1 is assembled component for Location No. 2, 3, 4, 21.

It's a general Mechanical Exploded View for SD-170EKB2 & SD-170EKE2.
Detailed information please refer to model set.

PARTS LIST: SD-170EKE2& SD-170EKB2

⚠	Location No.	TSB P/N.	Reference No.	Description
	1	AH802145	55-D550D1-0HNB6	FRONT DOOR ASS'Y
	Ass'y1	AH802152	02-D550FA-XX0B4	ASS'Y-FRONT PANEL
⚠	5	AH802125	08-580STR-FBY	ASS'Y- FRONT PCB
	6	AH802013	63-B26080-BF4	S/T SCREW B 2.6 X 8 BF
	7	AH802160	54-968210-000	PAD
	8	AH802147	67-T580R1-0E0	BOTTOM CABINET
	9	AH802015	64-B30060-304	TRIANGLE M/C SCREW B 3 X 6
⚠	10	AH802127	08-SD270E-PWN	ASS'Y-POWER PCB
	12	AH802014	63-B30080-BF4	S/T SCREW B 3 X 8 BF
⚠	13	AH802164	51-DC0150-0IAA4	POWER CORD for SD-170EKE2
		AH802159	51-DC0150-0HAA4	POWER CORD for SD-170EKB2
⚠	14	AH802197	08-170EKB-MAN	ASS'Y-MAIN PCB
	15	AH802015	64-B30060-304	TRIANGLE M/C SCREW B 3 X 6
	16	AH802112	64-B30060-303	TRIANGLE M/C SCREW B 3 X 6
	17	AH802149	67-T580T1-0E0B2	TOP COVER
	18	AH802056	64-B30070-304	MACHINE SCREW B3*7
⚠	19	AH802256	08-LOADER-092A1	ASS'Y-LOADER
⚠	20	AH802131	08-SDK580-SWY	ASS'Y-SWITCH PCB
⚠	-	AH802257	72-170EKE-120B2	USER MANUAL (GERMAN VERSION FOR SD-170EKE2)
⚠	-	AH802199	72-170EKB-050B3	USER MANUAL (ENGLISH VERSION FOR SD-170EKE2)
⚠	-	AH802199	72-170EKB-050B3	USER MANUAL (ENGLISH VERSION FOR SD-170EKB2)
	-	AH802101	06-RC3008-A0000	REMOTE CONTROL
	-	AH802102	41-UH1200-0KK8D	AV CABLE
	-	AH802103	49-382380-BAT	BATTERY 7# (R03P AAA SUM-4)

SAFETY PRECAUTION

The parts identified by ⚠ mark are critical for safety. Replace only with part number specified. The mounting position of replacement is to be identical with originals.
The substitute replacement parts which do not have the same safety characteristics as specified in the parts list may create shock, fire or other hazards.

Electrical Parts List-Front Board

CAPACITOR

C1	28-AB0104-ZFX	SMD. CAP 0.1 UF 50V +80%-20% 0603
C2	25-HCB470-M1X	47UF 16V
C3	28-AB0104-ZFX	SMD. CAP 0.1 UF 50V +80%-20% 0603
C4	28-AB0102-KBX	SMD. CAP 1000 pF 50V +/-10% B
C5	28-AB0104-ZFX	SMD. CAP 0.1 UF 50V +80%-20% 0603
C9	25-HCB221-M1X	CAP. ELEC 220 UF 16V +/-20% (6.3X7.7)
C10	28-AB0104-ZFX	SMD. CAP 0.1 UF 50V +80%-20% 0603

CONNECTOR

CN3	46-FH012T-09P1	HS 9PIN

CONNECT WIRE

-	46-GG018T-02KGA	2PIN HS 18CM

DIODE

D1	10-1N4148-ABF	DIODE 1N4148 (SWITCHING)
D2	10-1N4148-ABF	DIODE 1N4148 (SWITCHING)

WIRE BARE JUMPER

J4	41-WJ0075-B00	WIRE BARE JUMPER 7.5MM
J6	41-WJ0075-B00	WIRE BARE JUMPER 7.5MM
J7	41-WJ0075-B00	WIRE BARE JUMPER 7.5MM
J8	41-WJ0075-B00	WIRE BARE JUMPER 7.5MM
J9	41-WJ0075-B00	WIRE BARE JUMPER 7.5MM

INDUCTANCE

R4	33-ELN501-NTX	CHIP BEAD 500 OHM +/-25%

RESISTOR

J5	19-BB0000-JTF	SMD. RES 0 OHM 1/10W +/-5%
R1	19-BB0101-JTF	SMD. RES 100 OHM 1/10W +/-5%
R3	19-AA0100-JTF	RES. SMD 10 OHM 1/16W +/-5%
R5	19-AA0513-JTF	RES.SMD 51K 1/16W +/-5% 0603
R6	19-AA0101-JTF	RES. SMD 100 OHM 1/16W +/-5%
R7	19-AA0101-JTF	RES. SMD 100 OHM 1/16W +/-5%
R8	19-AA0101-JTF	RES. SMD 100 OHM 1/16W +/-5%
R9	19-AA0103-JTF	RES. SMD 10K OHM 1/16W +/-5%
R10	19-AA0103-JTF	RES. SMD 10K OHM 1/16W +/-5%

RESISTOR

R18	19-AA0472-JTF	RES. SMD 4.7K OHM 1/16W +/-5%
R19	19-AA0472-JTF	RES. SMD 4.7K OHM 1/16W +/-5%
R20	19-AA0472-JTF	RES. SMD 4.7K OHM 1/16W +/-5%

SWITCH TACT

S2	48-TAC020-XX0	SWITCH TACT TSAB-1
S3	48-TAC020-XX0	SWITCH TACT TSAB-1
S4	48-TAC020-XX0	SWITCH TACT TSAB-1

OTHERS

LED1	14-VFD006-XX2FA	VFD
REM1	02-IRR005-X11	remote control systems
U1	13-ET6202-00BXA	IC ET6202 SOP-2

Electrical Parts List-Switch Board

S1	48-TAC020-XX0	SWITCH TACT TSAB-1

Note: Only the parts mentioned in this list are normal service spare parts

Electrical Parts List-Power Board

CAPACITOR

C1	25-GMA100-M1S	CAP. ELEC 400V/10UF/+/-20%
C2	25-GMA150-M1S	CAP. ELEC 400V/15UF/+/-20%
C4	25-BDB470-M1X	CAP. ELEC 47 UF 25V +/-20%
C5	26-AKA152-KRF	CAP. CER 1500 pF 1KV +/-10%
C6	25-BDB470-M1X	CAP. ELEC 47 UF 25V +/-20%
C7	25-BCA102-M1X	CAP. ELEC 1000 UF 16V +/-20%
C8	25-BCB471-M1X	CAP. ELEC 470 UF 16V +/-20%
C9	25-BFB100-M1X	CAP. ELEC 10 UF 50V +/-20%
C10	27-MBC104-J0X	CAP. M.P.E 0.1 UF 63V +/-5%
C11	27-MBC104-J0X	CAP. M.P.E 0.1 UF 63V +/-5%
CY1	26-APK102-MEF	CAP. CER 1000PF 400VAC +/-20%E

DIODE

D1	10-1N4007-EBX	DIODE IN4007
D2	10-1N4007-EBX	DIODE IN4007
D3	10-1N4007-EBX	DIODE IN4007
D4	10-1N4007-EBX	DIODE IN4007
D6	10-0FR102-FBX	DIODE FR102 (1A/100V)
D7	10-0FR102-FBX	DIODE FR102 (1A/100V)
D8	10-1N4007-EBX	DIODE IN4007
D9	10-1N4007-EBX	DIODE IN4007
D10	10-0SR240-SBXFA	SR240

FUSE

F1	50-02000D-BUS	FUSE

INDUCTANCE

FB1	35-339740-008	FERR BEAD BF40TA-3.5X6X1
L1	34-R681M2-1BXGA	COIL WIDTH
L2	34-R689K2-1BX	COIL SL0811-6R8K2R4

RESISTOR

R1	18-CD0563-JNX	RES. C.F. 56k OHM 1/4W +/-5%
R2	18-CD0304-JNX	RES. C.F. 300k OHM 1/4W +/-5%
R3	18-CD0304-JNX	RES. C.F. 300k OHM 1/4W +/-5%
R5	18-DB0123-FNX	RES. M.F. 12K OHM 1/6W +/-1%
R7	18-DB1132-FNX	RES.C.C. 11.3K OHM 1/6W +/-1%
R8	18-CB0102-JNX	RES. C.F. 1K OHM 1/6W +/-5%

RESISTOR

R9	18-CB0222-JNX	RES. C.F. 2.2k OHM 1/6W +/-5%
R10	18-CB0101-JNX	RES. C.F. 100 OHM 1/6W +/-5%
R11	18-CB0220-JNX	RES. C.F. 22 OHM 1/6W +/-5%
TR1	22-NTC100-XH1	NTC SCK08102LG

TRANSFORMER

T1	36-TRF243-XX0GA	TRANSFORMER CONV

IC& VARIOUS

U1	13-FSDH32-10BXA	FSDH321
U2	13-PC123X-9YP	PHOTOCOUPLER PC123X9YFZ
U3	13-H431BA-00TFA	adiustable shuat rcgulator

Note: Only the parts mentioned in this list are normal service spare parts

Electrical Parts List-Main Board

CAPACITORS

C2	28-AB0103-ZFX	CAP.SMD 10NF 50V +80-20% 0603
C3	28-AB0103-ZFX	CAP.SMD 10NF 50V +80-20% 0603
C4	28-HB0103-ZFX	SMD. CAP 10NF 50V +80%-20% 0402
C5	28-HB0103-ZFX	SMD. CAP 10NF 50V +80%-20% 0402
C6	28-AB0103-ZFX	CAP.SMD 10NF 50V +80-20% 0603
C7	28-HB0103-ZFX	SMD. CAP 10NF 50V +80%-20% 0402
C8	28-HB0103-ZFX	SMD. CAP 10NF 50V +80%-20% 0402
C9	28-HB0103-ZFX	SMD. CAP 10NF 50V +80%-20% 0402
C10	28-HB0103-ZFX	SMD. CAP 10NF 50V +80%-20% 0402
C11	28-AB0103-ZFX	CAP.SMD 10NF 50V +80-20% 0603
C12	28-HB0103-ZFX	SMD. CAP 10NF 50V +80%-20% 0402
C15	28-HB0103-ZFX	SMD. CAP 10NF 50V +80%-20% 0402
C19	28-HB0103-ZFX	SMD. CAP 10NF 50V +80%-20% 0402
C20	28-AB0103-ZFX	CAP.SMD 10NF 50V +80-20% 0603
C21	28-AB0103-ZFX	CAP.SMD 10NF 50V +80-20% 0603
C22	28-HB0103-ZFX	SMD. CAP 10NF 50V +80%-20% 0402
C23	28-AB0103-ZFX	CAP.SMD 10NF 50V +80-20% 0603
C24	28-HB0103-ZFX	SMD. CAP 10NF 50V +80%-20% 0402
C25	28-HB0103-ZFX	SMD. CAP 10NF 50V +80%-20% 0402
C26	28-HB0103-ZFX	SMD. CAP 10NF 50V +80%-20% 0402
C27	28-HB0103-ZFX	SMD. CAP 10NF 50V +80%-20% 0402
C28	28-HB0103-ZFX	SMD. CAP 10NF 50V +80%-20% 0402
C29	28-HB0103-ZFX	SMD. CAP 10NF 50V +80%-20% 0402
C30	28-HD0104-ZFX	SMD. CAP 100 NF 25V +80% -20% 0402
C31	28-HB0102-KBX	SMD. CAP 1000PF 50V +/-10% 0402
C32	28-HB0102-KBX	SMD. CAP 1000PF 50V +/-10% 0402
C33	28-HB0273-ZFX	SMD. CAP 0.027UF 50V +80%-20% 0402
C34	28-HB0102-KBX	SMD. CAP 1000PF 50V +/-10% 0402
C35	28-HB0102-KBX	SMD. CAP 1000PF 50V +/-10% 0402
C36	28-HB0102-KBX	SMD. CAP 1000PF 50V +/-10% 0402
C37	28-HB0100-JCX	SMD. CAP 10 PF 50V +/-5% 0402
C38	28-HB0220-JCX	SMD. CAP 22 PF 50V +/-5% 0402
C39	28-HB0220-JCX	SMD. CAP 22 PF 50V +/-5% 0402
C42	28-HD0104-ZFX	SMD. CAP 100 NF 25V +80% -20% 0402
C43	28-HA0224-ZFX	SMD. CAP
C44	28-HD0104-ZFX	SMD. CAP 100 NF 25V +80% -20% 0402
C45	28-HB0220-JCX	SMD. CAP 22 PF 50V +/-5% 0402
C48	28-HB0103-ZFX	SMD. CAP 10NF 50V +80%-20% 0402

CAPACITORS

C49	28-HD0104-ZFX	SMD. CAP 100 NF 25V +80% -20% 0402
C50	28-HB0330-JCX	SMD. CAP 33 PF 50V +/-5% 0402
C51	28-AB0104-ZFX	SMD. CAP 0.1 UF 50V +80%-20% 0603
C54	28-HB0102-KBX	SMD. CAP 1000PF 50V +/-10% 0402
C55	28-HB0102-KBX	SMD. CAP 1000PF 50V +/-10% 0402
C57	28-AB0104-ZFX	SMD. CAP 0.1 UF 50V +80%-20% 0603
C58	28-HD0104-ZFX	SMD. CAP 100 NF 25V +80% -20% 0402
C62	28-HD0104-ZFX	SMD. CAP 100 NF 25V +80% -20% 0402
C63	28-HB0101-JCX	SMD. CAP 100 PF 50V +/-5% 0402
C67	28-HD0104-ZFX	SMD. CAP 100 NF 25V +80% -20% 0402
C68	28-HD0104-ZFX	SMD. CAP 100 NF 25V +80% -20% 0402
C91	28-HB0201-JCX	SMD. CAP 200PF 50V +/-5% 0402
C92	28-HB0201-JCX	SMD. CAP 200PF 50V +/-5% 0402
C93	28-HB0181-JCX	SMD. CAP 180PF 50V +/-5% 0402
C94	28-HB0181-JCX	SMD. CAP 180PF 50V +/-5% 0402
C95	28-AB0330-JCX	SMD CAP 33PF 50V +/-5%
C96	28-AB0330-JCX	SMD CAP 33PF 50V +/-5%
C97	28-AB0330-JCX	SMD CAP 33PF 50V +/-5%
C98	28-AB0330-JCX	SMD CAP 33PF 50V +/-5%
C99	28-AB0104-ZFX	SMD. CAP 0.1 UF 50V +80%-20% 0603
C100	28-HD0104-ZFX	SMD. CAP 100 NF 25V +80% -20% 0402
C117	28-HD0104-ZFX	SMD. CAP 100 NF 25V +80% -20% 0402
C118	19-GA0103-JTF	SMD. RES 10K OHM 1/16W +/-5%
C119	28-HB0681-KBX	SMD. CAP 680 PF 50V +/-10% 0402
C120	28-HD0104-ZFX	SMD. CAP 100 NF 25V +80% -20% 0402
C121	28-HD0104-ZFX	SMD. CAP 100 NF 25V +80% -20% 0402
C122	28-HB0220-JCX	SMD. CAP 22 PF 50V +/-5% 0402
C123	28-HD0221-JCX	SMD. CAP 220PF 25V +/-5% 0402
C124	28-HB0102-KBX	SMD. CAP 1000PF 50V +/-10% 0402
C125	28-HD0221-JCX	SMD. CAP 220PF 25V +/-5% 0402
C126	28-HB0102-KBX	SMD. CAP 1000PF 50V +/-10% 0402
C127	28-HD0104-ZFX	SMD. CAP 100 NF 25V +80% -20% 0402
C131	28-HB0101-JCX	SMD. CAP 100 PF 50V +/-5% 0402
C132	28-AB0101-JCX	SMD. CAP 100 pF 50VDC +/-5%
C133	28-AB0101-JCX	SMD. CAP 100 pF 50VDC +/-5%
C134	28-AB0101-JCX	SMD. CAP 100 pF 50VDC +/-5%
C135	28-HB0101-JCX	SMD. CAP 100 PF 50V +/-5% 0402
C136	28-HB0101-JCX	SMD. CAP 100 PF 50V +/-5% 0402

Electrical Parts List-Main Board

CAPACITORS

C140	28-HB0101-JCX	SMD. CAP 100 PF 50V +/-5% 0402
C141	28-HB0101-JCX	SMD. CAP 100 PF 50V +/-5% 0402
C142	28-HB0101-JCX	SMD. CAP 100 PF 50V +/-5% 0402
C144	28-HD0104-ZFX	SMD. CAP 100 NF 25V +80% -20% 0402
C146	28-HB0103-ZFX	SMD. CAP 10NF 50V +80%-20% 0402
C147	28-HB0103-ZFX	SMD. CAP 10NF 50V +80%-20% 0402
C148	28-HB0103-ZFX	SMD. CAP 10NF 50V +80%-20% 0402
C149	28-HB0103-ZFX	SMD. CAP 10NF 50V +80%-20% 0402
C154	28-HB0101-JCX	SMD. CAP 100 PF 50V +/-5% 0402
C175	28-HB0101-JCX	SMD. CAP 100 PF 50V +/-5% 0402
C176	28-HB0101-JCX	SMD. CAP 100 PF 50V +/-5% 0402
C178	28-HB0101-JCX	SMD. CAP 100 PF 50V +/-5% 0402
C179	28-HB0101-JCX	SMD. CAP 100 PF 50V +/-5% 0402
C180	28-HB0101-JCX	SMD. CAP 100 PF 50V +/-5% 0402
C181	28-HB0101-JCX	SMD. CAP 100 PF 50V +/-5% 0402
C182	28-HB0101-JCX	SMD. CAP 100 PF 50V +/-5% 0402
C183	28-HB0101-JCX	SMD. CAP 100 PF 50V +/-5% 0402
C195	28-HB0102-KBX	SMD. CAP 1000PF 50V +/-10% 0402
C201	28-HD0104-ZFX	SMD. CAP 100 NF 25V +80% -20% 0402
C202	28-AB0102-KBX	SMD. CAP 1000 pF 50V +/-10% B
C205	28-HB0102-KBX	SMD. CAP 1000PF 50V +/-10% 0402
C207	28-HB0103-ZFX	SMD. CAP 10NF 50V +80%-20% 0402
EC1	25-BCB470-M1X	CAP. ELEC 47 UF 16V +/-20%
EC4	25-BCB101-M1X	CAP. ELEC 100 UF 16V +/-20%
EC9	25-BCB100-M1X	CAP. ELEC 10 UF 16V +/-20%
EC10	25-BCB470-M1X	CAP. ELEC 47 UF 16V +/-20%
EC11	25-BCB470-M1X	CAP. ELEC 47 UF 16V +/-20%
EC12	25-BCB101-M1X	CAP. ELEC 100 UF 16V +/-20%
EC13	25-BCB470-M1X	CAP. ELEC 47 UF 16V +/-20%
EC14	25-BCB221-M1X	CAP. ELEC 220 UF 16V +/-20%
EC20	25-BCB221-M1X	CAP. ELEC 220 UF 16V +/-20%
EC25	25-BDB470-M1X	CAP. ELEC 47 UF 25V +/-20%
EC26	25-BDB470-M1X	CAP. ELEC 47 UF 25V +/-20%
EC27	25-BCB220-M1X	CAP. ELEC 22 UF 16V +/-20%
EC28	25-BCB220-M1X	CAP. ELEC 22 UF 16V +/-20%
EC35	25-BCB471-M1X	CAP. ELEC 470 UF 16V +/-20%
EC36	25-BDB470-M1X	CAP. ELEC 47 UF 25V +/-20%
EC38	25-BCB221-M1X	CAP. ELEC 220 UF 16V +/-20%

CAPACITORS

EC39	25-BCB221-M1X	CAP. ELEC 220 UF 16V +/-20%
EC40	25-BCB470-M1X	CAP. ELEC 47 UF 16V +/-20%

CONNECTOR

CN1	46-33079W-07X	PIN BASE *7 TJC3-7A
CN2	46-39617W-24X	24PIN
CN3	46-35199W-05X	CONN.PH-5A 5PIN PITCH=2.0MM
CN4	46-35199W-06X	PH-6A 6PIN PITCH-2.0MM
CN5	46-35199W-09X	sockets
CN6	47-RCA150-XX1	RCA SOCKET
CN7	47-RCA231-XX1	SOCKET
CN8	47-SCA008-XX0	SCART SOCKET

DIODE

D1	09-LL4148-ATF	SMD. SWITCHING DIODE LL4148
D2	09-LL4148-ATF	SMD. SWITCHING DIODE LL4148
D3	09-LL4148-ATF	SMD. SWITCHING DIODE LL4148
D4	09-LL4148-ATF	SMD. SWITCHING DIODE LL4148
D19	09-BAT54C-STXGA	BAT54C
D24	09-LL4148-ATF	SMD. SWITCHING DIODE LL4148
D25	09-LL4148-ATF	SMD. SWICHING DIODE LL4148
D26	09-LL4148-ATF	SMD. SWITCHING DIODE LL4148
D27	09-LL4148-ATF	SMD. SWITCHING DIODE LL4148
D28	09-LL4148-ATF	SMD. SWITCHING DIODE LL4148
D29	09-LL4148-ATF	SMD. SWITCHING DIODE LL4148

INDUCTANCE

FB1	33-KLN501-NTX	BEAD BGH0603B501LT 500 OHM
FB3	33-KLN501-NTX	BEAD BGH0603B501LT 500 OHM
FB4	33-KLN501-NTX	BEAD BGH0603B501LT 500 OHM
FB6	33-KLN501-NTX	BEAD BGH0603B501LT 500 OHM
FB7	33-KLN750-NTXGA	75 OHM +/-25% 0603
FB8	33-KLN750-NTXGA	75 OHM +/-25% 0603
FB9	33-KLN750-NTXGA	75 OHM +/-25% 0603
FB26	33-ELN501-NTX	CHIP BEAD 500 OHM +/-25%
FB27	33-ELN501-NTX	CHIP BEAD 500 OHM +/-25%
FB30	33-KLN501-NTX	BEAD BGH0603B501LT 500 OHM
FB34	33-ELN501-NTX	CHIP BEAD 500 OHM +/-25%

Electrical Parts List-Main Board

INDUCTANCE

L2	33-ELM100-KTX	SMD. COIL 10UH +/-10% 0805
LL1	35-339740-008	FERR BEAD BF40TA-3.5X6X1

TRANSISTOR

Q1	12-BT3904-0BX	SMD. TRANSISTOR MMBT3904LT1(NPN)
Q2	12-G9012M-HBX	TRANSISTOR SMT 3CG9012M
Q3	12-G9012M-HBX	TRANSISTOR SMT 3CG9012M
Q4	11-CA8550-DBX	TRANSISTOR
Q5	11-CA8550-DBX	TRANSISTOR
Q13	12-G9012M-HBX	TRANSISTOR SMT 3CG9012M
Q14	12-G9012M-HBX	TRANSISTOR SMT 3CG9012M
Q15	12-G9012M-HBX	TRANSISTOR SMT 3CG9012M
Q17	12-BT3904-0BX	SMD. TRANSISTOR MMBT3904LT1(NPN)
Q18	12-BT3904-0BX	SMD. TRANSISTOR MMBT3904LT1(NPN)
Q23	12-BT3904-0BX	SMD. TRANSISTOR MMBT3904LT1(NPN)
Q24	12-BT3904-0BX	SMD. TRANSISTOR MMBT3904LT1(NPN)
Q25	12-BT3904-0BX	SMD. TRANSISTOR MMBT3904LT1(NPN)
Q31	12-BT3904-0BX	SMD. TRANSISTOR MMBT3904LT1(NPN)

RESISTOR

D5	19-BB0000-JTF	SMD. RES 0 OHM 1/10W +/-5%
D6	19-BB0000-JTF	SMD. RES 0 OHM 1/10W +/-5%
D30	18-FG0229-JHX	RES. M.O. 2.2 OHM 2W +/-5%
D31	18-FF0689-JGX	RESISTOR
JP1	19-GA0000-JTF	SMD. RES 0 OHM 1/16W +/-5% 0402
L3	19-AA0000-JTF	RES. SMD 0 OHM 1/16W +/-5%
L4	19-AA0000-JTF	RES. SMD 0 OHM 1/16W +/-5%
L5	19-AA0000-JTF	RES. SMD 0 OHM 1/16W +/-5%
L6	19-AA0000-JTF	RES. SMD 0 OHM 1/16W +/-5%
L7	19-AA0000-JTF	RES. SMD 0 OHM 1/16W +/-5%
R1	19-GA0472-JTF	SMD. RES 4.7K OHM 1/16W +/-5%
R2	19-GA0750-JTF	SMD. RES 75 OHM 1/16W +/-5% 0402
R3	19-GA0513-JTF	SMD. RES 51K OHM 1/16W +/-5% 0402
R4	19-GA0513-JTF	SMD. RES 51K OHM 1/16W +/-5% 0402
R5	19-GA0223-JTF	SMD. RES 22K 1/16W +/-5%
R6	19-GA0513-JTF	SMD. RES 51K OHM 1/16W +/-5% 0402
R7	19-AA1542-FTF	SMD. RES 15.4K OHM 1/16W +/-1% 0603
R8	19-AA0101-JTF	RES. SMD 100 OHM 1/16W +/-5%

RESISTOR

R9	19-AA0101-JTF	RES. SMD 100 OHM 1/16W +/-5%
R10	19-AA3920-FTF	SMD RES 392 OHM 1/16W +/-1% 0603
R12	19-AA0000-JTF	RES. SMD 0 OHM 1/16W +/-5%
R13	19-GA0750-JTF	SMD. RES 75 OHM 1/16W +/-5% 0402
R14	19-GA0224-JTF	SMD. RES 220K OHM 1/16W +/-5% 0402
R15	19-GA0750-JTF	SMD. RES 75 OHM 1/16W +/-5% 0402
R19	19-GA0750-FTF	SMD. RES 75 OHM 1/16W +/-1% 0402
R20	19-GA0750-FTF	SMD. RES 75 OHM 1/16W +/-1% 0402
R21	19-GA0750-FTF	SMD. RES 75 OHM 1/16W +/-1% 0402
R22	19-GA0750-FTF	SMD. RES 75 OHM 1/16W +/-1% 0402
R23	19-GA0750-FTF	SMD. RES 75 OHM 1/16W +/-1% 0402
R24	19-GA0000-JTF	SMD. RES 0 OHM 1/16W +/-5% 0402
R25	19-GA0103-JTF	SMD. RES 10K OHM 1/16W +/-5%
R26	19-GA0103-JTF	SMD. RES 10K OHM 1/16W +/-5%
R27	19-GA0103-JTF	SMD. RES 10K OHM 1/16W +/-5%
R33	19-GA0331-JTF	SMD. RES 330 OHM 1/16W +/-5% 0402
R34	19-GA0103-JTF	SMD. RES 10K OHM 1/16W +/-5%
R35	19-GA0103-JTF	SMD. RES 10K OHM 1/16W +/-5%
R36	19-GA0101-JTF	SMD. RES 100 OHM 1/16W +/-5%
R37	19-AA0202-JTF	RES.SMD 2K 1/16W +/-5% 0603
R38	19-AA0202-JTF	RES.SMD 2K 1/16W +/-5% 0603
R39	19-GA0000-JTF	SMD. RES 0 OHM 1/16W +/-5% 0402
R41	19-GA0102-JTF	SMD. RES 1K OHM 1/16W +/-5%
R42	19-GA0102-JTF	SMD. RES 1K OHM 1/16W +/-5%
R43	19-GA0479-JTF	SMD. RES 4.7 OHM 1/16W +/-5% 0402
R44	19-GA0221-JTF	SMD. RES 220 OHM 1/16W +/-5%
R45	19-GA0479-JTF	SMD. RES 4.7 OHM 1/16W +/-5% 0402
R46	19-GA0221-JTF	SMD. RES 220 OHM 1/16W +/-5%
R48	19-GA0330-JTF	SMD. RES 33 OHM 1/16W +/-5%
R49	19-GA0101-JTF	SMD. RES 100 OHM 1/16W +/-5%
R50	19-GA0101-JTF	SMD. RES 100 OHM 1/16W +/-5%
R52	19-GA0332-JTF	SMD. RES 3.3K OHM 1/16W +/-5%
R56	19-GA0479-JTF	SMD. RES 4.7 OHM 1/16W +/-5% 0402
R66	19-GA0102-JTF	SMD. RES 1K OHM 1/16W +/-5%
R70	19-AB0203-FTF	0603 RES. SMD 20K OHM 1/10W +/-1%
R71	19-AB0123-FTF	SMD. RES 12K OHM 1/10W +/-1% 0603
R72	19-AA0472-FTF	RES. SMD 4.7K OHM 1/16W +/-1% 0603
R73	19-AA0103-FTF	1206 SMD.RES.10k OHM 1/16W 1%

Electrical Parts List-Main Board

RESISTOR

R74	19-GA0202-JTF	SMD. RES 2K OHM 1/16W +/-5% 0402
R75	19-GA0202-JTF	SMD. RES 2K OHM 1/16W +/-5% 0402
R76	19-GA0109-JTF	SMD. RES 1 OHM 1/16W +/-5% 0402
R84	19-GA0102-FTF	SMD. RES 1K OHM 1/16W +/-1%
R85	19-GA0102-FTF	SMD. RES 1K OHM 1/16W +/-1%
R86	19-GA0333-JTF	SMD. RES 33K OHM 1/16W +/-5%
R88	19-GA0000-JTF	SMD. RES 0 OHM 1/16W +/-5% 0402
R90	19-GA0472-JTF	SMD. RES 4.7K OHM 1/16W +/-5%
R91	19-GA0472-JTF	SMD. RES 4.7K OHM 1/16W +/-5%
R92	19-GA0472-JTF	SMD. RES 4.7K OHM 1/16W +/-5%
R120	19-GA0104-JTF	SMD. RES 100K OHM 1/16W +/-5%
R121	19-GA0104-JTF	SMD. RES 100K OHM 1/16W +/-5%
R122	19-GA0104-JTF	SMD. RES 100K OHM 1/16W +/-5%
R123	19-GA0104-JTF	SMD. RES 100K OHM 1/16W +/-5%
R124	19-GA0221-JTF	SMD. RES 220 OHM 1/16W +/-5%
R125	19-GA0473-JTF	SMD. RES 47K OHM 1/16W +/-5%
R126	19-GA0101-JTF	SMD. RES 100 OHM 1/16W +/-5%
R127	19-GA0103-JTF	SMD. RES 10K OHM 1/16W +/-5%
R128	19-GA0103-JTF	SMD. RES 10K OHM 1/16W +/-5%
R129	19-GA0330-JTF	SMD. RES 33 OHM 1/16W +/-5%
R133	19-GA0472-FTF	SMD. RES 4.7K OHM 1/16W +/-1%
R134	19-GA0472-FTF	SMD. RES 4.7K OHM 1/16W +/-1%
R135	19-GA0472-FTF	SMD. RES 4.7K OHM 1/16W +/-1%
R136	19-GA0472-FTF	SMD. RES 4.7K OHM 1/16W +/-1%
R137	19-GA0472-FTF	SMD. RES 4.7K OHM 1/16W +/-1%
R138	19-GA0472-FTF	SMD. RES 4.7K OHM 1/16W +/-1%
R139	19-GA0472-FTF	SMD. RES 4.7K OHM 1/16W +/-1%
R140	19-GA0472-FTF	SMD. RES 4.7K OHM 1/16W +/-1%
R141	19-GA0472-FTF	SMD. RES 4.7K OHM 1/16W +/-1%
R142	19-GA0472-FTF	SMD. RES 4.7K OHM 1/16W +/-1%
R143	19-GA0472-FTF	SMD. RES 4.7K OHM 1/16W +/-1%
R144	19-GA0472-FTF	SMD. RES 4.7K OHM 1/16W +/-1%
R149	19-GA0124-FTF	SMD. RES 120k+/-1% 1/16W 0402
R150	19-GA0124-FTF	SMD. RES 120k+/-1% 1/16W 0402
R151	19-GA0124-FTF	SMD. RES 120k+/-1% 1/16W 0402
R154	19-GA0124-FTF	SMD. RES 120k+/-1% 1/16W 0402
R155	19-GA0124-FTF	SMD. RES 120k+/-1% 1/16W 0402
R156	19-GA0124-FTF	SMD. RES 120k+/-1% 1/16W 0402

RESISTOR

R157	19-GA0124-FTF	SMD. RES 120k+/-1% 1/16W 0402
R158	19-GA0124-FTF	SMD. RES 120k+/-1% 1/16W 0402
R159	19-GA0124-FTF	SMD. RES 120k+/-1% 1/16W 0402
R160	19-GA0124-FTF	SMD. RES 120k+/-1% 1/16W 0402
R161	19-GA0124-FTF	SMD. RES 120k+/-1% 1/16W 0402
R162	19-GA0124-FTF	SMD. RES 120k+/-1% 1/16W 0402
R163	19-GA0000-JTF	SMD. RES 0 OHM 1/16W +/-5% 0402
R164	19-GA0000-JTF	SMD. RES 0 OHM 1/16W +/-5% 0402
R167	19-AA0000-JTF	RES. SMD 0 OHM 1/16W +/-5%
R168	19-AA0000-JTF	RES. SMD 0 OHM 1/16W +/-5%
R169	19-GA0682-JTF	SMD. RES 6.8K OHM 1/16W +/-5%
R170	19-GA0682-JTF	SMD. RES 6.8K OHM 1/16W +/-5%
R171	19-GA0562-JTF	SMD. RES 5.6K OHM 1/16W +/-5% 0402
R172	19-GA0562-JTF	SMD. RES 5.6K OHM 1/16W +/-5% 0402
R173	19-GA0471-JTF	SMD. RES 470 OHM 1/16W +/-5% 0402
R174	19-GA0471-JTF	SMD. RES 470 OHM 1/16W +/-5% 0402
R175	19-GA0330-JTF	SMD. RES 33 OHM 1/16W +/-5%
R176	19-AA0330-JTF	RES. SMD 33 OHM 1/16W +/-5%
R184	19-GA0000-JTF	SMD. RES 0 OHM 1/16W +/-5% 0402
R189	19-GA0302-JTF	SMD. RES 3K OHM 1/16W +/-5% 0402
R190	19-GA0202-JTF	SMD. RES 2K OHM 1/16W +/-5% 0402
R195	19-GA0560-JTF	SMD. RES 56 OHM 1/16W +/-5% 0402
R196	19-GA0390-JTF	SMD. RES 39 OHM 1/16W +/-5% 0402
R197	19-GA0620-JTF	SMD. RES 62 OHM 1/16W +/-5% 0402
R198	19-AB0182-JTF	SMD. RES 1.8K OHM 1/10W +/-5% 0603
R199	19-AB0182-JTF	SMD. RES 1.8K OHM 1/10W +/-5% 0603
R200	19-GA0102-JTF	SMD. RES 1K OHM 1/16W +/-5%
R201	19-AB0680-JTF	SMD. RES 68 OHM 1/10W +/-5% 0603
R202	19-GA0102-JTF	SMD. RES 1K OHM 1/16W +/-5%
R203	19-GA0222-JTF	SMD. RES 2.2K OHM 1/16W +/-5%
R204	19-GA0103-JTF	SMD. RES 10K OHM 1/16W +/-5%
R219	19-GA0000-JTF	SMD. RES 0 OHM 1/16W +/-5% 0402
R220	19-GA0102-JTF	SMD. RES 1K OHM 1/16W +/-5%
R221	19-GA0102-JTF	SMD. RES 1K OHM 1/16W +/-5%
R222	19-GA0102-JTF	SMD. RES 1K OHM 1/16W +/-5%
R224	19-AA0472-JTF	RES. SMD 4.7K OHM 1/16W +/-5%
R225	19-AA0000-JTF	RES. SMD 0 OHM 1/16W +/-5%
R226	19-GA0103-JTF	SMD. RES 10K OHM 1/16W +/-5%

Electrical Parts List-Main Board

RESISTOR

R227	19-GA0103-JTF	SMD. RES 10K OHM 1/16W +/-5%
R228	19-GA0103-JTF	SMD. RES 10K OHM 1/16W +/-5%
R229	19-GA0103-JTF	SMD. RES 10K OHM 1/16W +/-5%
R230	19-GA0103-JTF	SMD. RES 10K OHM 1/16W +/-5%
R231	19-GA0103-JTF	SMD. RES 10K OHM 1/16W +/-5%
R233	19-GA0221-JTF	SMD. RES 220 OHM 1/16W +/-5%
R234	19-GA0330-JTF	SMD. RES 33 OHM 1/16W +/-5%
R235	19-GA0479-JTF	SMD. RES 4.7 OHM 1/16W +/-5% 0402
R238	19-GA0479-JTF	SMD. RES 4.7 OHM 1/16W +/-5% 0402
R239	19-GA0000-JTF	SMD. RES 0 OHM 1/16W +/-5% 0402
R244	19-AA0000-JTF	RES. SMD 0 OHM 1/16W +/-5%
R245	19-AA0000-JTF	RES. SMD 0 OHM 1/16W +/-5%
R246	19-AA0000-JTF	RES. SMD 0 OHM 1/16W +/-5%

IC& VARIOUS

U1	13-ZR3696-60BXA	ZR36966
U2	13-EM6361-65B	IC EM636165TS-7
U4	13-AL016D-00BFA	16m Flash 70ns 3.3V TSOP-48
U5	13-00M24C-08B	EEPROM 8K M24C08WMN6TP
U7	13-AM5888-S0B	IC AM5888IC
U14	13-AS4558-00B	IC AS4558M
U16	13-TS5V33-0QB	IC TS5V330DBQR
Y1	45-OSC27M-0Y5B	CRYSTAL DM2700020B

Note: Only the parts mentioned in this list are
normal service spare parts

Specifications

DVD Video player/Outputs/Supplied Accessaries

DVD Video player

Power supply	110 V -240V AC, 50/60 Hz
Power Consumption	12W
Mass	2 kg
External dismensions	360 X 43 X 209 mm (W/H/D)
Signal System	PAL, NTSC
Laser	Semiconductor laser, wavelength 650/780 nm
Frequency range	DVD linear sound : 48 kHz sampling 4 Hz to 22 kHz 96 kHz sampling 4 Hz to 44 kHz
Signal-to-noise ratio	More than 90 dB
Audio dynamic range	More than 80 dB
Harmonic distortion	Less than 65 dB
Wow and flutter	Below measurable level [(less than $\pm$ 0.001 % (W.PEAK)]
Operating conditions	Temperature : 5°C to 35°C Operation status :Horizontal

Outputs

Video output (SCART)	1.0 V (p-p) , 75 Ω, SCART socket x 1
Video output (phone type)	1.0 V (p-p) , 75 Ω negative sync., pin jack x 1
Component video output	(Y) 1.0 (p-p), 75 Ω negative sync., pin jack x 1 (P_B)/(P_R) 700 mV (p-p), 75 Ω, pin jack x 2
Audio output (SCART)	2.0 (rms), 680 Ω, SCART socket x 1
Audio output (COAXIAL DIGITAL)	0.5 V (p-p) 75 Ω pin jack x 1
Audio output (ANALOG)	2.0 V (rms), 680 Ω, pin jacks (L/R) x 1

Supplied Accessories

Audio/Video cable	
Remote control(SE-R0268)	
Batteries(AAA)	

- The model complies with the above specifications.
- Designs and specifications are subject to change without notice.
- This model may not be compatible with features and /or specifications that may be added in the future.

REVISION LIST

Version 1.0
* Initial release

Remark: This Service manual only for TOSHIBA Service repairment, Please Don't transmitte or forward it to others.

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